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R H Black

.M.D.

A small token of esteem
for Dr Robert J. Black
from

Jayson J. Smyth
29 Corn Market
Belfast.
Aug 4th 1853.



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A

TREATISE

ON THE

PREVENTION AND CURE

OF

PULMONARY CONSUMPTION.

BY

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P R E F A C E.

EVERY disease incident to the human body should receive a degree of consideration proportionate to its danger, and to the frequency of its occurrence; and, as Pulmonary Consumption is that which is not only the most common, but by far the most fatal in its effects, I think it should occupy the attention of the physician more than any other. Having, for many years past, enjoyed extensive practical opportunities of studying it, I now beg leave to submit to the public the following Treatise, as the result of my experience; and, if the principles which I have therein endeavoured to inculcate shall tend either to the relief of the sufferings, or to the prolongation of the life of my fellow-creatures, I will consider myself amply rewarded for the many years I have laboured to acquire a correct, practical acquaintance with the subject.

The attention paid to the different means necessary for the purpose of preventing the occurrence of Pulmonary Consumption has always appeared to me extremely defective. I have, therefore, entered into their consideration at much length; and I trust it will be found, that if they are carried into effect in the manner which I have recommended, there will be a vast reduction in the number of victims to that disease. Although I do not believe that, in every instance, its occurrence would be prevented in these countries by the use of any means which could be employed; yet I am convinced, that in a considerable

number, much might be done towards the fulfilment of this end, provided those of a suitable nature were adopted at an early period of life. It would appear to me, that the want of success which the physician has generally experienced in the prevention of tuberculous disease of the lungs, is owing as much to the necessary treatment not being soon enough carried into effect, as to any inadequacy on its part to establish such a state of the body as would obviate the occurrence of the disease.

With reference to the *cure* of Pulmonary Consumption, I have endeavoured to prove that it may be accomplished, in a great many instances, by the most simple remedies; but, although this is the case, there are very few patients who will derive any benefit from the curative means employed, because they are neither sufficiently extensive, nor used at a sufficiently early stage of the disease. I think the opinion, that Consumption is incurable at every stage, has been productive of the greatest mischief, inasmuch as it has frequently induced medical men to give up the employment of all remedial measures, and submit the patient to his fate, when there was still a good chance of effecting a cure, had those of a proper kind been used only in a suitable manner. It could not possibly be expected, that the proportion of cures would be very large, no matter how soon, after the formation of the tubercles in the lungs has taken place, the necessary treatment is carried into effect. I think, however, that even a small proportion should be sufficient to encourage the physician to the greatest activity in the employment of the requisite remedies.

ROBERT LITTLE.

Belfast, February 1, 1836.

C O N T E N T S.

CHAP. I.

PRELIMINARY OBSERVATIONS ON THE NATURE, CAUSES, SYMPTOMS, &c. OF PULMONARY CONSUMPTION.

	<i>Page</i>
Nature of Pulmonary Consumption	1
Causes of Pulmonary Consumption	16
Symptoms of Pulmonary Consumption.....	28
Complications, Progress, and Termination of Pulmonary Consumption	38

CHAP. II.

ON THE PREVENTION OF PULMONARY CONSUMPTION.

On the means best calculated, during the foetal and the infant state, for preventing the formation of a constitutional tendency to Pulmonary Consumption, or for removing such tendency when it exists.	45
On the best mode of preventing, during childhood, adolescence, and the succeeding stages of life, the formation of a constitutional disposition to Pulmonary Consumption; and also of preventing the occurrence of the disease when such disposition, whether natural or acquired, exists	58

CHAP. III.

ON THE CURE OF PULMONARY CONSUMPTION.

On the different remedies which may be most advantageously employed in the treatment of Pulmonary Consumption during its early stage	83
On the treatment of the most troublesome symptoms which occur during the incipient stage of Pulmonary Consumption	136
On the remedies which are most profitable for the treatment of Pulmonary Consumption during its advanced stage.....	148

A

TREATISE

ON

PULMONARY CONSUMPTION.

CHAP. I.

PRELIMINARY OBSERVATIONS ON THE NATURE, CAUSES, SYMPTOMS, &c. OF PULMONARY CONSUMPTION.

Nature of Pulmonary Consumption.

WHEN the study of Morbid Anatomy was little attended to,—as was the case for many centuries, even after those obstacles were to a certain extent removed which had been thrown in the way in the ruder ages of the world,—it is not at all wonderful that the diseases of some of the most important organs of the body, though quite different from each other, should have been in very many instances all comprehended under some one term. In proportion as physicians become better acquainted with Morbid Anatomy, in the same proportion they acquire a more correct knowledge of the characters of disease, and, of course, of the symptoms which indicate one diseased condition from those which indicate another. Notwithstanding that the maladies of the lungs have been, for a great length of time, considered amongst the most dangerous from which the human species are liable to suffer; yet it is only within the last few years that medical men have acquired any thing like precise ideas respecting them. It was, for instance, no uncommon thing, not long since, to include under the term *Phthisis Pulmonalis*, or Pulmonary Consumption, tubercular for-

mations, chronic inflammation, and various other diseases of the lungs; so that, instead of applying to the different morbid affections to which these organs are liable, certain specific terms, calculated to point out their nature and seat, the whole were very often confounded together on account of their being accompanied with a wasting of the body—a symptom common to them all.

The confusion and danger produced by the application of improper terms in medicine, were, for many ages, very great; and I am not acquainted with any one circumstance which has tended so much of late years to improve the physician in the treatment of pulmonary affections, as that of knowing with accuracy for what disease he is prescribing, and what changes he should expect from the remedies which he employs.

Of all the organs which enter into the formation of the human body, the lungs are the most subject to disease; and such is not at all wonderful, when the nature and extent of their functions are duly considered. It is in them that the purification of the blood takes place; and in order to accomplish this, they are not only kept in constant motion, but they are subjected to the greatest variety of impressions on account of the great difference that there is at various seasons of the year, and in different places of the temperature and general physical qualities of the air which circulates through their numerous tubes and cells for that very important purpose.

The term *Phthisis Pulmonalis*, or Pulmonary Consumption—which was employed for a great length of time in the most vague manner, and without being more applicable, in many instances, to one diseased condition of the lungs than to another—has been, since the time Laennec published his celebrated work on the diseases of the chest, confined to those of a tuberculous nature.

The formation, growth, and conversion of pulmonary tubercles into a purulent state, are all generally preceded, accompanied, or succeeded by disease of the natural tissues of the lungs; but, as to the amount of disease or the tissue which is most affected, there is the greatest difference in almost every successive case to

which the physician directs his attention. It would therefore appear, that, although consumption may be considered as a malady proceeding from the development of certain morbid growths in the place of some of the natural tissues or secretions of the lungs; yet it will be found, in every instance, that these organs are also affected with various other diseases in connexion with that of a tuberculous kind. It is, for instance, in the disease in question, a very rare thing not to meet with bronchitis, pneumonia, or pleuritis, either singly or conjointly, at some time during its progress; so that different disorganizing processes may be going on at the same time. It is, therefore, from the circumstance of the pulmonary organs presenting the most opposite morbid appearances in fatal cases of consumption, not by any means wonderful, that the greatest difficulty should have arisen as to the relation which these had to each other.

Scrofula, of which Pulmonary Consumption is only a particular form, may be regarded as one of the most prevalent, and, at the same time, most destructive diseases, incident to the human species, in all cold damp climates, especially when they are subject to sudden changes of temperature, from heat to cold, or from cold to heat. In those countries, however, whose temperature is pretty uniform, no matter whether they be cold or hot, it does not prevail to the same extent, nor is it so very fatal in its effects.

Different attempts have been made to estimate the mortality in various countries from the disease in question, in all the divers forms which it assumes at different ages; but it is impossible to arrive, respecting this, to any thing like the truth. From the calculations which have been made, it would appear, that in these countries, one fourth of the deaths which occur annually, are from tuberculous disease of the lungs; and that from this, and all the various other forms of scrofula, the mortality is about one third of the whole. I do not think that, taking an average of the number of deaths which take place every year in these countries from tuberculous disease of the lungs, or scrofula, in all its different

forms, it would be any thing near so high as has been very generally stated. It is mostly in large towns that calculations are made with regard to the comparative mortality from different diseases; and when such is the case, the results will be found to be at the greatest variance from what occurs when similar calculations are made in small towns, or in country districts. If I were to speak from what I have observed myself, relative to the comparative mortality from scrofula in all its forms in Belfast and the neighbouring country, I would say, that it is nearly three times as great in the former as in the latter, in proportion to the population. From the situation of the town just mentioned, and other circumstances connected with it, there would seem to be a complete combination of every thing requisite for the purpose of generating, or bringing into action, tuberculous disease of the lungs, and other forms of scrofula; and yet, from the calculations which I have made, for several years past, both at the Hospital and Dispensary, I would not be justified in rating the mortality from Pulmonary Consumption at more than the one eighth; and from this and the various other forms which scrofula assumes, at more than the one sixth of the entire mortality occurring in any given time. It has always appeared to me, that a disease, such as I am considering, which is liable to assume such a vast variety of forms, and to affect so many different parts of the system, must necessarily give rise to many errors in any estimates which are made relative to the comparative mortality it occasions. Be this, however, as it may, there is no physician who has had a sufficiently extensive opportunity for observation, who could possibly avoid coming to the conclusion, that scrofula, in some form or other, is at least infinitely more prevalent and fatal than any other morbid affection of the system to which he can direct his attention; and it would appear, that no matter whether his observations may be made in a large town or in a district of country, still he will find the results as to its fatal effects, when compared with other maladies occurring in the same locality, to be proportionably great.

It is a very curious circumstance, that the disease in question should, in many parts of the world, not only prove the most fatal of all others to the human species, but that it should also give rise to the same fatal effects in many of the lower orders of animals, whose physical and vital powers must be all, to a very considerable extent, different from those possessed by man.

It is not only wonderful, that tubercular diseases are liable to occur in many of the lower animals as well as the human species, but that the susceptibility of particular organs to their occurrence should vary as much in one order of beings as in another. The monkey species seem to be more predisposed to these morbid formations, than any of the other lower orders of animals; so that those creatures which are the most closely allied to the human species in point of form, and in all probability also in point of organization, of any of the inferior animals, are the most liable to fall victims to tuberculous disease, but more particularly of the lungs.* It would therefore appear, that man is not the only being that is liable to Consumption, and various other forms of scrofula.

The susceptibility of different parts of the body to tubercular diseases varies very much at different periods of life; so that, while at one time they are of all morbid affections the most common, and at the same time the most destructive in their effects to one part, they are least so to another. Although in infancy they sometimes occur in the lungs, the absorbent glands, and various other situations in the body; still such is so very seldom the case, that it would be exceedingly difficult to say, at that period of life, what parts are most liable to their formation. The same, however, is not the case during childhood; for they are then very frequently to be met with; and the absorbent glands would seem, of all the structures of the body, those in which they are by far the most liable to take place. This is the case from one till ten or twelve years of age, and even, in many instances, till fourteen or

* See *Andral, Precis d'Anat. Pathologique.* Dupuy, de l'*Affection Tuberculeuse.*

fifteen. Now, from that period of life when the body has arrived, or nearly arrived, at full maturity, the lungs, instead of the absorbent glands, would appear to be the most frequently affected with the morbid formations in question. It would, in fact, seem that Pulmonary Consumption is of very rare occurrence in either early or advanced life, when compared with what it is from about the age of maturity until the fortieth or forty-fifth year.*

Tubercles present the greatest difference in their appearance in different situations of the body; and this is even the case, in the same situation, at various stages of their growth. In the lungs they are frequently to be met with of not greater size than that of the head of a small pin; and at other times, they will vary in size from that of a pea to a hazel nut. But again, instead of the tubercular matter assuming the round form, it is secreted in large irregular masses, and thus constitutes what has been denominated tubercular infiltration. While there is the greatest variety with respect to the magnitude of these morbid growths, there is also the greatest variety with reference to their colour. They have, for instance, sometimes a semi-transparent aspect, and at other times an opaque. It would appear that their transparency diminishes in proportion as they increase in size; so that, after they have acquired a certain degree of development, they gradually begin to assume an opaque appearance. It would, therefore, occur to me that, while they are of a very small size, they are always possessed of a degree of transparency. This has been, at least, the case in every instance where I have had an opportunity of investigating the subject at a sufficiently early stage of their growth. In several instances I have had an occasion afforded me of examining recent cases of tubercular infiltration, and I have invariably found the solidified mass to present a considerable

* For a more detailed account of the comparative frequency of the occurrence of tubercles in different parts of the body at different ages, see *Andral, Precis d'Anat. Patholog.* tome I. *Lombard, Essai sur les Tubercles.* *Louis, Recherches sur la Phthisie.*

degree of transparency. The fact is, I am of opinion, if I can judge accurately from the number of patients which I have had an opportunity of examining while affected with the morbid formations in question in an early stage, that, no matter what shape they assume, they are, in their primary state, possessed of a certain degree of transparency.

While there is the greatest diversity with regard to the colour and magnitude of pulmonary tubercles, there is also the greatest variety in their degree of consistence. They are, for instance, sometimes almost as firm as cartilage, and at other times they are possessed only of a very slight degree of density. I have always found, when an opportunity has been afforded me of examining them before any reduction had taken place in their original density, that those which were situated at a considerable distance from each other, were possessed of a much greater degree of compactness of texture than such as were closely connected together. I am also led to believe, that they are considerably more solid in persons from thirty-five till fifty years of age, at the same stage of their growth, than they are from fifteen till thirty-five. In youth they would, in fact, seem to increase in size with much greater rapidity than they do after life is somewhat advanced; and I believe it is an almost uniform law, both with new animal and vegetable formations, that, in proportion as their growth is quick, in the same proportion their texture becomes less and less firm. Now, if the same be applicable to the morbid growths in question, it must appear that in those cases where their increase in bulk is slow, their density will be, during their primary stage, much greater than when they grow in a more rapid manner.

The opinion of Laennec* respecting the more frequent occurrence of tubercles in the right than the left lung, has been called in question by Louis,† who thinks the contrary of this is the case; that they take place much more frequently in the left than the

* *Auscult. Mediat.*

† *Recherches sur la Phthisie.*

right. It is very difficult to arrive at the truth in such an investigation as this, unless it be carried on in a very large scale, and for a considerable length of time. Out of seventy cases of tuberculous disease of the lungs, which I have had an opportunity of examining after death, I have found the right lung as frequently and as extensively affected as the left; and I cannot, therefore, agree with either of these eminent pathologists in considering the one more liable to suffer in this way than the other. Notwithstanding I am of opinion that the right and left lung are equally liable to be affected with the formations in question, still in no individual case which is examined after death, will this be found to be correct; and it is only on that account, by comparing a great number of cases, the physician can say any thing definite with respect to the susceptibility of each.

With reference to the part of the lungs where tubercles are most liable to occur, I believe, however, it is admitted by almost all, that it is in their superior lobes. In early life, and in those cases where they are distinct from each other, this rule would certainly hold good; but in persons who are advanced in life, or in cases of what has been denominated tubercular infiltration, I am inclined to think, the lower lobes are by far the most frequently and extensively affected. This has been the case, at least as far as I have had an opportunity of investigating the subject.

It was the prevailing opinion amongst physicians, till within the last few years, that tubercles were formed exclusively in the cellular tissue of the lungs. This was the opinion held by Laennec, and some others, relative to their seat. I am quite convinced, they are frequently formed in the cellular tissue; but, while this is the case, I am at the same time satisfied, that their formation frequently occurs in the air tubes and air cells. This is, however, more especially the case with the latter. It would seem to me, altogether, relative to their formation, that it may take place at the same time in the air tubes, air cells, and cellular tissue.

Dr. Carswell thinks, the seat of the morbid deposits in ques-

tion is the air tubes and air cells.* Notwithstanding the great importance which is to be attached to any opinion expressed by that gentleman, with regard to the various morbid affections of the pulmonary organs, still, I think, his opinions relative to the disease which I am now considering, are any thing at all but correct. In cases of tubercular infiltration, I believe, all the tissues of the lungs which I have just mentioned, may become the seat of the morbid deposits at one and the same time. I am of opinion, however, that, when the tubercles assume the distinct form, it is more particularly in the cellular tissue their formation takes place.

The gray semi-transparent granulations which were first described by Bayle,† and afterwards considered by Laennec‡ and others to be the primary state of pulmonary tubercles, are supposed by Andral§ not to be of a tubercular nature, but rather the result of a kind of chronic inflammation. I am quite satisfied, however, he is not at all correct in this opinion; and I have no hesitation in asserting, that the granulations which are so frequently to be met with in the lungs, in the different stages of Consumption, are the commencement of the tubercles. I have had, in fever patients, very frequent opportunities afforded me of examining the lungs at the very earliest stage of tubercular formations, and there is no doubt left on my mind as to their transparent appearance for some time after their formation has taken place. In all the patients I have examined, where the disease was at an early stage, I never met with the opaque, without, at the same time, the semi-transparent tubercles; and from the much greater size of the former than the latter, I was quite satisfied, that the smaller were in their primary, and the larger in their secondary state. In what is called tubercular infiltration, the solidified part had, in every instance where I examined it, but more particularly at an early stage, a somewhat transparent

* See *Cyclopædia of Practical Medicine*; art. Tubercle. † *Recherches sur la Phthisie.* ‡ *Auscult. Mediat.* § *Precis d'Auct. Patholog.*

appearance. This fact I have been repeatedly enabled to verify, in my examinations of patients carried off by typhus fever, before the tubercular disease of the lungs had made much progress.

There is nothing connected with the subject of these morbid formations that has given rise to so much diversity of opinion, as, whether or not they are organized. It would appear to me, that one reason why there has been so much variety of opinion in this respect, is owing to the very different stages at which they have been examined. For instance, a person would arrive at a very different conclusion relative to their organic or inorganic nature, if he were to examine them with care at various stages. This is a thing, however, which is very seldom practicable, unless a patient be carried off by some acute disease, such as typhus fever, before the morbid formations have been long in existence. From the extensive opportunities which I have enjoyed, of examining not only pulmonary tubercles, but also those of the absorbent glands and other parts of the body, I have no hesitation in saying, that I consider them, during their primary or early stage, organized bodies; but, in process of time, by a series of changes which they undergo, they are deprived of their vitality. I am, therefore, decidedly of opinion, that the growth of a tubercle, and its subsequent conversion into a caseous or liquid state, are as much entitled to the appellation of vital operations, as the formation of a phlegmonous swelling and its subsequent conversion into a liquid or purulent state. When any of the absorbent glands which are situated about the neck, or in any other superficial situation, become tuberculous, it is no uncommon thing for them to be afterwards reduced to their natural size and structure. Now this is a thing which would not be at all likely to take place, if such increase of size was entirely owing to the deposition of inorganic particles.

I conceive that the first step in the formation of these morbid growths, is the effusion of a certain quantity of coagulable lymph, into whatever tissue or part is about to suffer from their presence. In the first place, this lymph is organized; and after that has

taken place, the increase in size, and all the subsequent changes which occur, are accomplished by its own peculiar powers and actions. No matter what may be the nature of a new growth, or how dissimilar it be in its structure to the parts in which it is formed, still, if possessed of vital properties at all, it must be connected with them by that vascular union common to every organized part of the body. After tubercles are therefore once formed, they must grow by their own vital actions; but they must, at the same time, derive the materials of their growth from the surrounding parts. It would thus appear, that such new formations as those in question, and the surrounding tissues, must affect and be affected by the physical and vital conditions of each other.

Tubercles may acquire a considerable degree of density, and may also attain a great size, and afterwards remain in an inactive state for a great number of years. This is, however, unfortunately the case only in a very small proportion of patients; for we find they are mostly changed, with very great rapidity, into a liquid or purulent state, after they have arrived at a certain magnitude and density. I think it might be laid down as a rule, to which there are only a very few exceptions, that, in cases of tubercular infiltration, the change from the solid to the fluid state takes place much sooner, and is effected with much greater rapidity, than when the disease assumes the distinct form; and again, when tubercles are very numerous, although quite distinct from each other, the same change will occur much earlier, and go on with much greater rapidity than when they are few in number, and remote from each other.

It is supposed by Dr. Carswell,* and various other eminent pathologists, that tubercles increase in size and density as inorganic bodies; and that they are again reduced to the fluid state, not by any changes which they can undergo as organized sub-

* See *Cyclopædia of Practical Medicine*; art. Tubercle.

stances, but from certain impressions which are made upon them by the parts with which they are surrounded. I do not mean to say, that the state of the tissues, in their immediate neighbourhood, may not hasten the process of suppuration or softening; for that is a thing to be expected, on account of their vital connections with each other: but that inflammation and suppuration are essentially necessary in such tissues to the production of the changes in question, I cannot at all admit. If these morbid growths be examined at different stages, it will be seen that some of them have acquired a considerable degree of fluidity, when the surrounding parts manifest nothing like an inflammatory appearance. It would be easy to conceive the possibility of a few distinct tubercles being dissolved in the fluid yielded by the parts with which they are surrounded, in a state of inflammation and suppuration, provided these were really possessed of solvent properties; but it would not be so easy to form an idea of the manner in which the greater part of an entire lung, when it is converted into a tubercular mass, could be changed to an almost fluid state by such a process. With reference to the softening of the morbid deposits in question, I am led to believe that it is immediately accomplished by their own actions; but, while this is the case, I am quite satisfied, that the state of the surrounding parts will either accelerate or retard such actions. The circumstance of tubercles being sometimes expectorated in an almost entire state, has, I think, tended very much to favour the idea, that they possess no internal organization, by means of which they can change themselves, and that their solution is effected by means of the fluids yielded by the suppuration of the surrounding tissues. There are certainly some cases where they are expectorated before the process of softening has been long established in them, or even before it has taken place at all; but, when such is the case, it is owing to some violent inflammatory action being excited in the vessels, by means of which they are nourished. If, for instance, they be few in number, and situated at a considerable distance from each other, it will be generally found

that they are possessed of a very low degree of vitality; and hence, when any considerable inflammatory excitement occurs in their nutritious vessels, their complete destruction is the consequence.

Although pulmonary tubercles arise from nearly the same general as well as local causes, yet it will be found, that, at different periods of life, and even at the same period of life, in different individuals, they will vary much as to the amount of their vitality; and hence a degree of inflammation or irritation, which would only accelerate the process of softening in one instance, will give rise to the sudden destruction of their connexions in another, so that they will be in some cases expectorated, without having previously undergone their usual changes. If it were true—as is very generally believed by many eminent pathologists at the present time—that they are reduced to a liquid state by suppuration of the surrounding parts, it is quite clear they would be more liable to excite inflammation and suppuration in the parts with which they come in contact, in proportion as their density increases: but the very reverse of this is the case; for such as are possessed of the firmest texture are those which remain, for the greatest length of time, in contact with the tissues of the lungs, without the occurrence of inflammatory action.

I think there cannot be a question that inflammatory excitement, when it occurs in the vicinity of a tubercle, has a most powerful effect in accelerating its change from a solid to a fluid state, by certain alterations which it produces in the condition of its nutritious and absorbent vessels. This is, in fact, clearly demonstrated by what occurs with regard to the softening of the tuberculous glands situated about the neck, and other superficial situations of the body, when any irritating application is made to the integuments which cover them. If the enlargement of such glands was merely the result of the deposition of inorganic matter, it is not at all likely that the production of a certain degree of cutaneous inflammation over them would give rise, as is frequently the case, in the course of a very few days or weeks, to their complete change from the solid to the fluid state. Now, this circum-

stance, while it tends to prove the effect of inflammatory action, in the vicinity of the morbid growths in question, in accelerating their conversion into a liquid or purulent state, is, in my opinion, one of the strongest proofs which could be given of their organic or vital nature. It very frequently happens, with regard to superficial tuberculous glands, that they remain for a considerable length of time in a very solid state, and that they are afterwards changed so far in their consistence, as to become quite soft; and all this has taken place without the least symptom of any cutaneous inflammation. If it would be, therefore, right to apply to tuberculous disease of the lungs what is observed to take place with reference to a similar diseased state of the superficial absorbent glands, it must appear, that while on the one hand inflammatory action accelerates the process of softening, on the other this will take place when there is no such action present in any of the tissues which are contiguous to the morbid growths.

After the process of softening has occurred in pulmonary tubercles, I am inclined to think, that the ulcerative inflammation, which sooner or later ensues in the neighbouring tissues, is excited by the irritation of the changed tubercular matter. It is a very curious circumstance, with regard to that ulcerative inflammation which takes place for the purpose of allowing tubercles, when changed into the purulent state, to be discharged from the lungs, that it occurs in such a large proportion of cases between the matter to be removed and the bronchial tubes, and so seldom with the cavity of the chest. Speaking from my own observation, I would say, the matter in question is not discharged into the cavity of the chest, in any quantity whatever, in more than one case in twenty-five.

The caverns left after the discharge of pulmonary tubercles, must necessarily assume very different appearances, and be of very variable degrees of extent. Their interior will, for instance, be, in some cases, of a large size and irregular shape; but, at other times, it will be small, and of the most regular form. The fact is, the size and appearance of the caverns in question are

liable to vary so much in every respect, that it would be quite impossible, as far as extent and figure are concerned, to give any description which would be at all generally applicable.

It is supposed by some pathologists, that the white, opaque membrane which is sometimes found lining such caverns after their purulent contents are discharged, is not formed previously to this occurrence; but to such an opinion I cannot agree; and I am fully persuaded, that, so far from this being the case, it is nothing more nor less than the cellular substance which connected the crude tubercles to the surrounding pulmonary tissues, converted into a secreting membrane, after being very considerably condensed. I am inclined to think, that a kind of cyst is produced in proportion as the process of softening goes on in a pulmonary tubercle; so that, by the time this process has been effected, there is a complete barrier formed against its escape, before a communication has been established between it and some neighbouring bronchial tube by ulcerative absorption. From the circumstance of the membrane in question continuing to secrete matter nearly the same, in its general characters, as that which was contained within it at first, I am led to believe, that, in whatever manner the various changes which take place in pulmonary tubercles are effected, the last of these is mainly accomplished by their own walls. In an ordinary phlegmonous abscess, the purulent matter is, I believe, almost universally considered, at the present time, to be a secretion from a cyst which is formed for the purpose of preventing its diffusion. I think the term *softening*, which is so generally applied to the change of tubercles from the solid to the fluid state, has given rise to very erroneous ideas respecting the manner in which such change is effected; for, so far from regarding it as an inorganic process, as has been very generally done, it should be viewed as one strictly of a vital nature, and which is effected partly by itself, and partly by its cellular medium of union with the surrounding tissues; after being to a certain degree condensed, so that it can carry on secretion and absorption.

It sometimes happens, that, instead of these morbid growths undergoing the various changes which I have been considering, they are converted almost completely into a calcareous state. Now, I would ask those who think they are of an inorganic nature, how this is accomplished, if they be not furnished with nutritious and absorvent vessels. I have seen, in some instances, almost the entire animal matter of one or more tubercles removed by the process of absorption, and a corresponding quantity of calcareous particles deposited in its place; and, again, I have seen in the same morbid products only a very few calcareous specks. It is very curious, with regard to the earthy transformation in question, that it takes place only in tubercles which are possessed of a very considerable degree of density.

Causes of Pulmonary Consumption.

THE causes of Pulmonary Consumption, or of the tubercular affection of the lungs, which I have been considering, are altogether very numerous. It is generally believed, and I think on just grounds, that there is a peculiarity of constitution inherited by the child from the parent, which renders it liable to become a prey to tubercular diseases, not only of the lungs, but also of various other important parts of the body. Of all the maladies which affect the human frame, there is certainly not one which is more constitutional in its nature than Pulmonary Consumption; and this is even so much the case, that it is very frequently transmitted from the parent to the child for successive generations. It is not necessarily the case, that all the children of parents having a constitutional tendency to the disease in question, should become affected with it; and hence we frequently find, that, no matter how strongly they may be predisposed to it from their natural powers, still it may never be brought into action at any period of life. There is nothing better established than the

fact, that, whatever constitutional powers and peculiarities are possessed by the parents, the same are generally transmitted to their offspring; but notwithstanding this, it is necessary, in order that these may manifest themselves, that the latter should be placed, at different periods of life, in circumstances as nearly as possible similar to the former. The constitutional tendency to Pulmonary Consumption will either be increased or diminished in the child, in proportion to the extent to which it prevails in the parents; so that in the event of either only one or both of these being slightly predisposed to the disease, it will not be so likely to manifest itself in the child.

It is admitted by all, that constitutional debility is, of all other causes, that which predisposes the system most to scrofulous or tuberculous diseases, of which Pulmonary Consumption, as has been already stated, is only a particular form. Although there can be no doubt that debility is one of the most powerfully predisposing causes of scrofula, whatever form it may assume, yet it is quite impossible to say what the nature of such debility is, as a person may be reduced to the lowest state compatible with life, and still when the natural powers of the system are good, nothing approaching to that disease, in any shape, will take place; and hence debility, in order to produce it, must be different from what is generally understood by that term. The fact is, that local and general debility of the system, which may be regarded as being favourable to the production of Consumption, are of a specific kind, and should rather be considered relative than absolute in their nature; because the natural actions and functions of any part of the body may be in what might be considered a most healthy state, and yet such part may be possessed of an organization ready to fall into disease of a scrofulous kind, on the slightest reduction of its vital powers. It would therefore appear, that, in addition to what is to be understood by the term *debility*, there must be some change of action; for if this were not the case, scrofula, either in the form of tuberculous disease of the lungs, or in some other shape, would be the result in every

instance where the powers of the system are reduced to a certain degree.

While there is a particular organization of the body, which renders the individual who possesses it a prey to Pulmonary Consumption, there is also a peculiar form and general appearance, by means of which, the constitutional peculiarity may be known in very many cases. For instance, those persons who have a strong constitutional predisposition to be affected with it, are generally of a fair complexion, and have mostly a narrow chest, long neck, and prominent shoulders. The truth is, the whole exterior of the body exhibits an appearance which experience has pointed out to be one of great debility, and which indicates that those who possess it are likely to fall victims to tuberculous disease of the lungs. There are certainly some individuals who die of consumption, whose form and appearance altogether point out a temperament of body the very opposite of what I have just mentioned, and one which is not at all likely to suffer from that disease. When, however, such is the case, it is to be viewed only in the light of an exception to what may be regarded as a pretty general rule.

In the well-marked consumptive temperament, the actions and functions of every part of the body, owing to its weak organization, are liable, from the occurrence of very slight mental or bodily impressions, to be far more disordered than when such a habit of body does not exist; and hence we find that digestion, circulation, respiration, absorption, nutrition, muscular motion, and various other actions and functions of the system, evince, from the slightest causes, the greatest derangement. In those who are therefore most liable to tuberculous disease of the lungs, or any other form of scrofula, it should be remembered, that it is not any individual organ or part of the body which is exclusively prone to disease; but, on the contrary, the whole frame, no matter how much more it may, from certain causes, manifest itself in one situation or tissue than in another.

From what has been said relative to the constitutional and

local nature of Consumption, it must appear, that debility is one of the circumstances most favourable to its occurrence; but that that debility is of a particular kind, and is very frequently transmitted from the parent to the child. Now, while this is the case, it is necessary in many instances, in order to bring the disease into action where a hereditary disposition to it exists, that after birth the child should be exposed to certain causes, giving rise to a debilitated state of the frame; and hence, to whatever degree the constitutional tendency to it may be inherited from the parents, any thing increasing the naturally weak state of the body, will contribute powerfully to bring it into action.

It is a most interesting inquiry to know how far causes of a debilitating nature are capable of generating a consumptive constitution, when it does not exist at birth. I think there cannot be a question, that many diseases of a hereditary nature are developed during the progress of life, notwithstanding the system was possessed of no tendency to their occurrence at birth. It would appear to me to be of very little consequence, with regard to the production of a disease, whether the operation of certain causes giving rise to it, takes place before or after birth.

A cold, damp climate is that in which tuberculous disease of the lungs prevails most; and a warm, dry one is that in which it prevails least. Now, it has been found, by the removal of persons who have a hereditary predisposition to it from the former to the latter climate, it will occur only in a very small proportion of cases, provided this be done at a sufficiently early period of life; and, again, by their removal from the latter to the former, it will take place in a very large proportion of cases, although it never manifested itself either in themselves or their forefathers, while inhabiting a country whose climate was not favourable to that peculiar debility of the system which seems to be so very conducive to its production. Every one who has devoted a considerable share of attention to pulmonary diseases, must have frequently met with cases where it was quite

impossible to discover any hereditary tendency to that of which I am treating, and where the local and constitutional predisposition to its occurrence was, to a certainty, generated after birth. The lower animals, which very frequently fall victims to Pulmonary Consumption when deprived of pure air, nutritious food, and proper exercise, are almost never affected with it when they are allowed to live in the state allotted to them by the Author of their being; but, as soon as the natural tone of their systems is brought down by one or more of the debilitating causes just mentioned, the disease is liable to take place. It would, therefore, appear to me, that, when a constitutional tendency to Consumption exists, every thing that lowers the tone of the body will bring it sooner into action; and, again, the long-continued application of debilitating causes may generate a susceptibility to it, when this did not exist at birth.

While there are certain states of the constitution, natural or acquired, favourable to the formation and growth of pulmonary tubercles, and those of various other parts of the body, still there must be some cause why they are confined more to one part than to another. With regard to the local causes which are most favourable to the bringing of these morbid formations into existence, it is supposed by some physicians, that inflammation is that local cause which is of all others the most common; and, again, it is imagined by many, that such a local cause has no share in their production. Now, no matter in what organ or part of the body they take place, their formation and growth are very much influenced by the state of the circulation. Those parts of the body which are most liable, at different periods of life, to be affected with inflammatory excitement, are those which are of all others the most subject to tuberculous disease. For instance, the absorbent glands about the neck, are, from their exposed situation, very obnoxious in all cold, damp countries, to inflammatory congestion; and we find that these are far more liable to tuberculous disease, than such as are situated in the axillæ groins, and other less exposed situations. In like manner, we find, in conse-

quence of that close connexion which subsists between the intestines and mesenteric glands, that much vascular excitement of the latter is of very frequent occurrence, owing to the great sensibility of the former at an early age, and their great liability to suffer an increase of action from the slightest irritating impressions. I do not, however, know any one part of the body which is altogether so liable to suffer from inflammatory excitement of its blood-vessels, as the lungs; and of all others, it is, at certain periods of life, that which is by far the most frequently affected with tuberculous disease.

I do not believe that it is acute inflammatory action which is most favourable to the development of the morbid growths in question, but rather a state of passive congestion, or what is denominated chronic inflammation. We very seldom find that such morbid growths take place in the lower lobes of the lungs, where acute inflammatory action is of so much more frequent occurrence than in the upper: but again in the upper lobes, they are of very frequent occurrence, although these are not by any means so subject to acute inflammation as the lower; but while this is the case, the upper are far more liable, in consequence of the very slight mobility of the corresponding portions of the walls of the chest, to a more permanent state of vascular congestion. If any organ in the body be kept in what might be called a state of permanent plethora, it will be much less likely to suffer from acute inflammatory excitement than when its vessels are distended to that degree only which is necessary for the due performance of its peculiar actions and functions. An over-distended state of the blood-vessels of any part of the body tends to blunt its sensibility, so that it is much less liable to have its actions suddenly deranged than when that is possessed in a much higher degree. It would therefore appear to me, that, from the different degrees of permanent vascular distention which exist between the upper and lower lobes of the lungs, is to be explained the great difference between them, respecting the frequency of the occurrence of tubercles.

I cannot agree in opinion with Bayle, Laennec, and some other eminent pathologists, that inflammatory action is not in any degree favourable to the formation and growth of these bodies; nor yet can I acquiesce in the opinion expressed by Broussais, that it is always necessary to their production. I do not believe that any one term in medicine has been employed with less precision of meaning than that of *inflammation*; and I am convinced, if its signification were better defined, there would be much less diversity of opinion than now exists amongst medical men respecting its effects in the production of the morbid growths which I am considering. I think the most appropriate term would be *vascular congestion*, as by this a more limited meaning would be taken than by that of inflammation, which is usually employed.

It is mostly during the winter and spring seasons, that the symptoms of Consumption first manifest themselves; and it is also mostly during the same seasons, that the superficial absorbent glands about the neck exhibit the first marks of tuberculous disease. Now, it would appear to me, that one great reason why this is the case, is owing to the vascular congestions which these parts are so liable to suffer during such seasons.

Catarrh, or a common cold, which consists in an inflammatory excitement of the mucous lining of the air tubes of the lungs, has been considered by many as a common exciting cause of Consumption; and, I am decidedly of opinion, such is very frequently the case in all cold and damp countries. Laennec, Louis, and some other physicians who have devoted a considerable share of attention to tuberculous disease of the lungs, think, that catarrh can have very little effect in bringing it into action, or in accelerating its progress. They in fact consider, that, instead of being regarded as a cause, it should be rather viewed as an effect. There cannot be the least doubt, that the presence of tubercles in the lungs, gives rise to catarrhal symptoms, and that their formation frequently precedes such symptoms a very considerable length of time; but, on the other hand, it is no uncommon thing for catarrh to succeed immediately to exposure

to cold, and for the person affected with it to exhibit, at the end of a few weeks or months, all the symptoms of Consumption, although, before the occurrence of the catarrhal affection, there never was the slightest indication of any such disease.

The dangerous effects of catarrh in persons predisposed to the disease of which I am treating, are of such every-day occurrence, that I cannot possibly conceive how any person can deny it, if he have paid any considerable attention to pulmonary affections. One argument employed by Laennec in favour of the idea, that Consumption is not produced by catarrhal affections, is the circumstance that the inhabitants of the seacoast, who are so liable to such affections, fall victims to tuberculous disease of the lungs, much less frequently than those who inhabit more inland and better sheltered situations. I think this argument is any thing but a conclusive one in favour of the opinion, that catarrh is not to be considered as an exciting cause of Consumption; for it is well known, that, while the inhabitants of the seacoast are more exposed to some of the exciting, they are much less so to some of the predisposing causes of that disease; and hence we find vascular congestions of the air tubes of the lungs, so dangerous in one locality, are not near so much so in another.

I think nothing tends more to show, that irritation of the air tubes of the lungs is a frequent exciting cause of Consumption, than the circumstance, that a very large number of those workmen who, from the nature of their employments, must inhale, during a considerable portion of each day, air loaded with various kinds of irritating particles, fall victims to that disease. Dr. Alison,* in an excellent paper on the pathology of scrofulous diseases, states, that there is scarcely an instance of a mason, regularly employed hewing stones in Edinburgh, living free from consumptive symptoms, beyond the age of fifty. This is certainly a most important fact, inasmuch as it shows how far irritation of

* *Transactions of the Medico-Chirurgical Society of Edinburgh*, vol. I.

the mucous lining of the pulmonary air tubes favours the development of tubercles.

In persons of consumptive habits of body, pneumonia or pleuritis, like catarrh, has the effect of bringing the disease into action. I am of opinion, with regard to the different forms of inflammation of the internal respiratory organs, that pneumonia, when it occurs in a certain degree, is by far the most liable to be followed by tubercular growths. No matter what tissue of the lungs becomes affected with inflammation in scrofulous constitutions, it is generally the case, that the disease assumes the chronic rather than the acute form. We, therefore, find in such temperaments, it is very seldom that either the mucous lining of the air tubes of the lungs, or any other tissue, will suffer an attack of acute inflammation, but, on the contrary, that of a chronic kind.

Typhus fever, which is a disease that prevails in these countries to a great extent, may be regarded as a very common cause of the development of pulmonary tubercles; for it is a disorder which, while it tends more than any other to reduce suddenly the tone of the system, has a most powerful effect in producing a state of congestion of the pulmonary organs. I have very rarely examined a fatal case of this disease, without observing a considerable degree of fulness of the blood-vessels of the lungs; but while this is the case, I am quite convinced it is very seldom that such fulness is the result of acute inflammatory action. The average number of patients admitted annually into the fever wards of the Belfast Hospital, is about six hundred. Now, out of this annual number, I think not less than twelve cases of Consumption succeed to the febrile attack, notwithstanding that before its occurrence there had been no symptoms of any pulmonary affection. It would not, however, appear to me that fever is likely to become a cause of Consumption, unless a constitutional predisposition to it exists; and when this is the case, I conceive there are very few other causes which will be so likely to bring it rapidly into action. It would seem, that fever acts both in the way of a predisposing and also of an exciting cause of that disease;

the first by reducing the tone of the system, and the second by producing an over-distended state of the pulmonary vessels.

Most of the eruptive fevers are productive of considerable irritation of the mucous lining of the air tubes of the lungs; and are, on that account, particularly dangerous in consumptive habits of body. It is a most fortunate circumstance, however, that these affections are not common after the age of maturity, when the greatest tendency to the formation of pulmonary tubercles exists. I have known several cases where such fevers were followed, even in very young children, by these morbid growths; and therefore, in all temperaments of a scrofulous kind, no matter what the age may be, the physician should be very watchful, lest that irritation of the mucous lining of the air tubes of the lungs, which seems to be an almost essential accompaniment of these fevers, may go on until tubercular formations be the result.

Hemoptysis was considered, not many years since, a very common exciting cause of Consumption, as the ruptured vessel or vessels giving rise to the hemorrhage were believed to ulcerate. Since, however, the pathology of pulmonary diseases has been studied with more care, the ulcerations which were formerly imagined to proceed from the rupture of some of the pulmonary blood-vessels are now known to be the result of tuberculous disease.

Spitting of blood is viewed at the present time, as has been the case for sometime past, rather as an effect than a cause of Consumption. The presence of tubercles in the lungs, especially when they are in considerable numbers, must give rise to a great degree of vascular plethora, and consequently, in many cases, to rupture of the over-distended blood-vessels. Although pulmonary hemorrhage is frequently owing to the presence of these bodies, still there are many instances in which this is not the case. When, however, the person in whom it occurs is of a scrofulous or consumptive constitution, it is to be regarded as a thing that may be followed by dangerous consequences.

I do not know any one cause of Pulmonary Consumption which is more general in these countries, than that of the immoderate use of ardent spirits; but this is more especially the case amongst the lower classes of the people. Impure air, deficient clothing, improper exercise, want of nutritious food, and many other causes of a debilitating nature, are favourable to the formation and growth of pulmonary tubercles; but the vice of drunkenness is, I do believe, much more destructive to the consumptive constitution than most other causes put together. When a predisposition to that disease exists from birth, as is very frequently the case, there is no way so certain of bringing it into action as by the immoderate use of ardent spirits; and where there is naturally a good constitution, and one that is free from any tendency to it, there is no way by which it can be generated with so much certainty as by that of the vice to which I am alluding.

The injurious effects resulting from the immoderate use of ardent spirits are not confined to any one organ or part of the body. It is because it thus weakens the stomach, and prevents the proper assimilation of the food—deranges the circulation of the blood, and favours congestions in particular organs—prevents the due performance of the different acts of secretion and absorption, and embarrasses the nervous, respiratory, and muscular systems—that the whole body is brought into a state favourable to the production of tuberculous disease. It is, therefore, not at all wonderful, that, owing to this cause alone, there should be from Pulmonary Consumption, which is one of the most fatal forms of these, an immense annual loss of life.

In addition to a general constitutional debility which the immoderate use of ardent spirits occasions, it produces, either directly or indirectly, a state of pulmonary congestion, which, as I have already stated, is a condition most favourable to the development of tubercles. Any one who has witnessed a case of intoxication, must have observed the great reduction in the number of respirations in a given time, when compared with what takes place in health. Now, during this slow state of the respiration, the blood

does not pass with the necessary ease through the lungs, and the consequence of this is an over-distended state of their blood-vessels. It would therefore appear, that one of the most dangerous effects from the immoderate use of ardent spirits in consumptive habits, is that of a congested state of the pulmonary vessels.

It was for a considerable length of time, and still is to a certain extent, a subject of dispute amongst physicians, as to whether Consumption be an infectious disease or not. I do not believe, that it is at all infectious; but while this is the case, I am fully persuaded, that it is highly injurious for a healthy person to breathe in the vitiated atmosphere which surrounds a patient labouring under it in the last stage. This is, however, more particularly the case, if such patient be of a consumptive habit of body. Several cases have come under my observation, where the attendants, or those who slept in the bed with persons in the last stage of Consumption, were seized with the same disease, though they had never manifested any tendency to it before being thus exposed. If there be a predisposition to tubercular disease of the lungs, I do not believe that any one cause will be so likely to increase it, as the respiration of air which has been vitiated by any kind of animal exhalations, no matter whether these proceed from the body of a person labouring under the same disease or not.

From what has been said altogether relative to the causes of Pulmonary Consumption, it must appear, that they may be constitutional; that is, they may reside in a certain weak organization of the body, which is transmitted from the parent to the child: but, as this may be either increased or diminished after birth, we find that the disease will manifest itself either early, or late, or not at all, accordingly as the constitutional predisposition is rendered stronger or weaker, from the circumstances in which the person who possesses it is placed at different periods of life. But, again, at birth a child may be possessed of a constitution free from any tendency to scrofula in any form, and still the long-continued operation of debilitating causes may bring the

disease into action. It would seem to me, that, no matter how a constitutional predisposition to tubercular affections is first generated, there must be certain reasons why they occur in one organ and not in another; and this I have endeavoured to explain by the operation of some internal or external causes giving rise to a greater degree of vascular congestion in one part of the body than in another.

Symptoms of Pulmonary Consumption.

THE symptoms, both local and general, of Pulmonary Consumption are sometimes, at an early stage, so well marked, that the physician has very little difficulty in discovering the morbid changes which are going on in the lungs; but again, no matter with what care he may study them, he will be unable to say, with reference to those either of a local or general nature, that they are completely characteristic of that disease. It is unfortunately too often the case, that neither the local nor the general symptoms which indicate the presence of tubercles in the lungs, are sufficiently developed, so as to point out their existence, until after they have increased so much in size or number, as to affect the functions of these organs to a greater or less extent, or of these in common with the rest of the system. Almost all the local symptoms of tuberculous disease of the lungs may result from other diseases; and almost all the general and local symptoms may proceed, in like manner, from pulmonary affections of a totally different kind.

It is, therefore, highly wrong, in studying the symptoms of the disease which I am considering, to attach too much importance to those either of a local or general nature, but rather come to a conclusion from a careful comparison of the whole. A consumptive or scrofulous constitution is, of all others, that in which

there is the greatest difficulty in arriving at the truth, with regard to the symptoms of disease of any one organ or part of the body. This arises from the extreme sensibility of the whole system in such a constitution, and the great liability of one part to sympathize in the morbid actions of another. Since the discovery of auscultation by the immortal Laennec, and since the signs afforded by this, and also by percussion, have been applied to the elucidation of tuberculous disease of the lungs, there is very little difficulty, in the great majority of cases, of coming to a correct conclusion, provided the general and local symptoms be carefully considered at the same time.

It is only by an early acquaintance with tubercular formations in the lungs, that a medical man is enabled to apply any means which will be very profitable, as far as a cure of the disease is concerned; and it is therefore necessary, that he should be acquainted with every sign, no matter how trifling, in order that, by a careful comparison of the whole, he may be enabled to arrive at a correct conclusion. I think there has certainly been, for some time past, quite too much importance attached to the signs afforded by percussion and auscultation, and too little to the general and local symptoms at every stage of the disease of which I am treating.

Although cough is generally one of the earliest local symptoms of tuberculous disease of the lungs, yet it will be found to vary much, with regard both to its severity and general characters in the same stage in different individuals, and in the same individual in different stages. It is sometimes the case, that a very considerable portion of either one or both lungs is in a tuberculous state long before there is any cough to arrest the attention; and at other times, the cough will be found to be exceedingly troublesome from the commencement of the tubercular formations. The fact is, that, during the early stage of Consumption, in a large proportion of cases, the cough proceeds more from the state of the mucous lining of the air-tubes of the lungs, than from any other cause; so that it is, in a very large

number of such patients, a catarrhal symptom in no way connected with the morbid formations in question. The circumstance that cough is sometimes for weeks together scarcely perceptible during the early stage of Consumption, and that its returns are frequently produced by slight exposure to cold, is sufficient to show that it is a symptom more owing to a diseased state of the mucous lining of the larynx trachea and ramifications of the bronchi, than to the presence of tubercles in the lungs.

When the softening in pulmonary tubercles has once taken place, there is then an ulcerative process established between them and some neighbouring bronchial tube or tubes for the purpose of giving exit to the matter. Now, when this is going on, there is usually a considerable degree of irritation both from the ulcerative inflammation of the bronchi, and from the purulent matter which is making its escape through the perforations to which the ulcerative process has given rise in the air tubes. It will be found, in fatal cases of Consumption, that the mucous membrane, from the larynx to the extreme ramifications of the bronchi, exhibits signs of disease; so that, no matter whether we consider pulmonary tubercles in their primary or secondary stage, we are to regard them as being frequently connected with more or less disease of the mucous membrane in question, independently of any effects which they produce.

Difficulty of breathing is one of the earliest symptoms of tubercles in the lungs. This is, however, more particularly the case when what is denominated *tubercular infiltration* has taken place, or when the morbid growths are in close approximation to each other, or else when they occupy a considerable portion of either one or both lungs. It is mostly the case, that difficult or hurried breathing occurs only, in the early stage of Consumption, when a person ascends a height, or takes more exercise in some way than usual; but, in proportion as the disease advances, and as the air cells of the lungs are rendered impervious to the air, in the same proportion the number of respirations, in a given time,

becomes more and more numerous; so that, by the frequency of their repetition, a kind of compensation may be made for the smallness of the quantity of air admitted into the pulmonary cells during each. From long and close observation, I am perfectly satisfied, that a hurried or difficult state of the breathing is far more indicative of the presence of tubercles in the lungs than cough, to which much more importance is generally attached. It will be found, even when there is only a very small portion of the air cells of the lungs impervious to the air, that the breathing becomes sensibly hurried in a person of consumptive habit of body. This is owing to the small capacity of the cavity of the chest, which is commonly to be met with in such habit; in consequence of which, the lungs cannot suffer even the slightest further diminution in their bulk, without giving rise to the effects in question.

The appearance, consistence, and quantity of the matter expectorated during the progress of tuberculous disease of the lungs, are subject to the greatest variety; and this must necessarily be the case, on account of the great difference that there is at various stages, with regard both to its causes and source. At that stage of the disease when the tubercles are in a crude state, the matter of the expectoration is yielded altogether by the mucous lining of the larynx trachea and ramifications of the bronchi; but, when the process of softening has taken place, it is then a kind of compound fluid, partly derived from the mucous membranes just mentioned, and partly from the caverns formed after the discharge of the softened tubercles. It would be quite impossible to give any description of the appearance of the expectoration, in Consumption, that would be applicable to different patients at the same stage. For instance, the expectoration will sometimes, while the disease is in its incipient state, have the appearance of the white of egg mixed with water; and at other times, it will be opaque, and, at the same time, quite thick. The truth is, that, during the presence of tubercles in the lungs, the expectoration is precisely the same before the process of softening has

taken place in them, as what occurs in the different stages of catarrh; but after the process of softening, there is, in almost all cases, a considerable change both in its colour and consistence. As soon as caverns are formed in the lungs by the discharge of the morbid growths just referred to there will sometimes be a mixture of blood with the matter expectorated; for, although this may be the case at a very early stage of the disease, or even before any such disease has taken place, yet it will be found, in the great majority of instances, it is from the caverns in question that pulmonary hemorrhage proceeds.

There is sometimes, during the last stage of Consumption, a kind of ash-coloured matter expectorated, which is generally considered as quite characteristic of the disease. I do not think, however, that such is really the case; for I have seen, in some instances, the matter expectorated in chronic bronchitis, present precisely the same ash-coloured appearance. I have had, in several patients, an opportunity of examining the state of the lungs after death, when the expectoration presented the appearance I have now mentioned; and I found in the great majority of them, that, with the exception of very slight ulcerations in different parts of the mucous lining of the trachea and ramifications of the bronchi, the rest of the pulmonary organs exhibited no symptoms of disease. There is, of course, in addition to the ulcerations in question, a relaxed, and, at the same time, a congested state of the lining membrane, sometimes of the trachea, and, at other times, of the bronchi, or both these parts. The only circumstance which renders the matter expectorated really characteristic of Consumption is, that of its containing tubercles in a half-dissolved state.

At one time physicians were in the habit of forming, to a very considerable extent, their opinion as to the nature of different pulmonary diseases, from the character of the matter expectorated; and when this was the case, they were at considerable trouble to find out some tests, by means of which they could with

certainly distinguish mucus from pus. With reference to Consumption, it would be quite impossible, even supposing there was a certain means of distinguishing these secretions, to say whether a patient was affected with that disease or not; because in chronic cases of catarrh, the expectoration will present nearly the same appearance, particularly when accompanied with ulceration of the mucous lining of the larynx trachea and ramifications of the bronchi. The matter expectorated is sometimes remarkably fetid, during a considerable portion of the last stage of Consumption, especially when the tubercles are discharged without having been previously changed into purulent matter. This fetid smell will, however, be frequently found to accompany an advanced stage of bronchitis, so that it cannot be considered to be characteristic of that disease.

It is very seldom, that a patient, labouring under Consumption in an early stage, suffers much from acute pain of the chest. In proportion, however, as the disease advances, there is, in some instances, severe pain experienced, especially towards the sides and between the shoulders. The acute pain which is thus sometimes endured, is mostly owing to inflammation of the pleuræ; but there is one of a dull kind which is occasionally very troublesome, and which, I am inclined to believe, is situated in the vicinity of the tubercles, and, in some instances, in these morbid growths themselves. An over-distended state of the blood-vessels may give rise to a considerable degree of uneasiness, without the presence of what might be called *acute inflammation*. Now, I am quite satisfied, that a great proportion of that which is experienced in different parts of the chest, before the process of softening commences in the tubercular formations in the lungs, arises from a congested state of the pulmonary vessels, which, as I have already endeavoured to prove, is a very common accompaniment of such formations.

The time when symptomatic fever sets in after the commencement of tuberculous disease of the lungs, is subject to the greatest variety in different cases. I have generally found it

to occur much sooner in persons of strongly marked scrofulous constitutions, than in those who possess a less powerfully marked temperament of that kind; and, again, it has always seemed to me to occur at a much earlier stage of the disease in young persons, than in those who are somewhat advanced in life. In the consumptive constitution there is mostly, in every part of the system, a remarkable sensibility to irritating impressions; and hence we find, that a local disease will give rise to constitutional symptoms of a hectic nature, even when it is not at all considerable. No matter whether these take place at an early or a more advanced period of tuberculous disease of the lungs, they will be found to be more severe in proportion to the extent of that disease. Sometimes, however, the softening of the morbid growths in question does not take place until a short time before death; but when this change occurs, it is almost invariably accompanied with an aggravation of the hectic symptoms.

Diarrhœa is certainly a very common accompaniment of the morbid formations in the lungs which I am considering. This is more particularly the case during their last stage, or after the process of softening has taken place. The diarrhœa which occurs during the progress of consumption, is sometimes owing to the presence of tubercles in the intestines; but, again, and in by far the great majority of instances, it proceeds from a general relaxed state of the system. Dr. Clarke* conceives, that the looseness of the bowels and perspirations which so frequently occur, more especially in the last stage of the disease, are not supplementary to each other. Now, in this idea, I think, he is not at all correct; for I have never met with a single case, either in hospital or private practice, where I was not quite satisfied, that every thing tending to aggravate the one symptom gave rise to a corresponding diminution in the severity of the other.

* See *Cyclopædia of Practical Medicine*; art. Tubercular Phthisis.

Sometimes there is very great wasting of the body, before the occurrence of either of these symptoms. In the great majority of instances, however, it will be found that the emaciation never becomes very extreme, until after either one or both of these have continued a certain length of time. Out of a hundred cases of Consumption, I found some of the symptoms to which I have just alluded, occur sooner or later in eighty-nine. From this it would appear, that although they cannot be considered invariable accompaniments of that disease, still they occur in a very large proportion of cases.*

The signs afforded by the percussion of the chest are certainly of the greatest value in the elucidation of tuberculous disease of the lungs, if they be studied in connexion with those obtained by auscultation, and also with the general and local symptoms. When tubercles are few in number, and when they are situated at a considerable distance from each other, there is very little change produced in the sound of the chest; but when, on the contrary, they are closely connected, or when tubercular infiltration has taken place, there is a diminution of sound in proportion to the extent of the solidified part of the lung. There is certainly far more information to be gained by percussing corresponding portions of the chest, than there is by striking only one part, and comparing it with what might be considered a healthy sound for such part. The truth is, the same situation will yield, in different chests, the most opposite sounds; so that there is no possible way of coming to any thing like a correct conclusion, except by trying what sound is yielded by corresponding portions of the same chest. It is not only neces-

* For a more minute account of the local and general symptoms of Pulmonary Consumption, I do not know any work to which I could refer the reader where he would get so much information as that of *Louis, Recherches sur la Phthisie*—a work which should, in fact, be in the hands of every physician who wishes to acquire a thorough knowledge of the various symptoms which mark the different stages of that disease.

sary to percuss corresponding portions, but it is requisite to do this at intervals of one or two days, for several times in succession. This is, in fact, a thing that is quite indispensable, because a very slight difference in the vascular condition of the lungs will produce a sensible difference in the clearness or dullness of the sound of a corresponding part of the chest. During inspiration it will yield a much clearer sound than during expiration. I am afraid that this circumstance is too little attended to in practice; and in consequence of which, many mistakes must be committed as to the real state of the lungs. When the stomach and bowels are much distended with any solid matter, there will also be, in most cases, a great reduction of the clearness of the sound of the part in question.

Auscultation, considered apart from any other means of ascertaining the presence of tubercles, or of the caverns which are left in the lungs after their discharge has taken place, is certainly most deceptive; for, like percussion, it is of very little use as a diagnostic means in the early stage of Consumption, unless the tubercles, by their number, and the closeness by which they are connected, render a portion of the lung impervious to the air. It is, however, very seldom, except in cases of tubercular infiltration, that these morbid growths prevent the free circulation of air through the lungs, until a considerable time after the commencement of their formation; and hence the sounds communicated to the ear through the stethoscope will be, in the great majority of instances, not at all indicative of any disease. The cases in which tubercular matter is deposited in such a manner in the pulmonary substance as to give rise to complete solidification, are comparatively very few. In those patients where the morbid growths in question are remote from each other, or are few in number, and are, at the same time, situated far from the surface, I do not think that the instrument which I am now considering is of much assistance in forming a diagnosis. In the advanced stage of Consumption, the stethoscope is, I do believe, considered by many as an almost infallible auxiliary in this respect.

I am quite convinced, however, that such is not the case; and, notwithstanding all that has been said in its favour during that stage, still I would be much inclined to think, that, in a great proportion of cases, it will be found a deceptive means in the hands of even the most experienced physician.*

There is, in some cases, a wonderful degree of difference between the motion of the healthy part of the chest, and that which is rendered impervious to the air. The physician will find this circumstance to be a most useful indication respecting the state of the parts within; and consequently, along with other symptoms, he can, in many instances, turn it to advantage. I would consider it almost as valuable as any other sign or symptom. From all that has been said relative to the local and general symptoms, and also the signs afforded by percussion and auscultation, it would appear, that there is no single symptom or sign that can be depended upon, or that can be truly regarded characteristic of the presence of tubercles, or of tubercular excavations in the lungs. It is, therefore, only by a correct knowledge of the different morbid symptoms, their duration, and the temperament, age, and habits of the patient, that the physician will be enabled to judge, with any degree of accuracy, as to the nature of the disease. Even after all this, he will be unable to come to any thing like a correct conclusion, unless he attach to every sign or symptom only a very limited degree of importance, and rather form his opinion from a careful consideration of the whole. When this mode of studying the different symptoms is pursued, there will not be more than one case in a hundred where a medical man who has devoted a sufficient degree of attention to the subject of Consumption, will not be enabled to distinguish it from chronic catarrh, or any other disease of the lungs. This,

* To the works of Laennec and Williams on the diseases of the chest, I think I may safely refer the reader for the most correct information with respect to the signs afforded by percussion and auscultation at the different stages of tuberculous disease of the lungs.

however, he certainly would be quite unable to do, were he to omit even the most trifling symptom, no matter whether that should be of a general or local nature. In studying the symptoms of maladies which are of a hereditary nature, a great degree of assistance may be afforded by the history of the patient and his relatives. This historical information will be particularly valuable, before the local and general symptoms become so far developed, that they can afford any sure indications of the nature of the disease.

Complications, Progress, and Termination of Pulmonary Consumption.

It is truly wonderful how many morbid changes are presented to the anatomist, on examining the bodies of those who have fallen victims to tuberculous disease of the lungs. For instance, these organs will sometimes exhibit extensive disease besides that produced by the formation and softening of the tubercles; and that disease will be the result of inflammatory action occurring at some time during their progress. The serous lining of the chest, and the diseased part of the lung, will, in a great proportion of cases, have formed intimate adhesions to each other. The mucous lining of the larynx trachea, and ramifications of the bronchi, will, in some cases, present a great increase of vascularity, and, at other times, there will be, in addition to this, numerous ulcers. Louis thinks, that the ulcers which are so very frequently to be met with in the mucous lining of the parts in question, are, to a certain degree, to be attributed to the passage of the purulent sputæ giving rise to ulcerative inflammation: but such an opinion, I am led to believe, is not at all well founded; for if this were the case, they would be numerous or scanty in proportion to the extent of the purulent expectoration. The fact is, there is in Consumption, but more particularly in proportion as debility sets in, a great tendency to vascular con-

gestion and ulceration, not only of the mucous lining of the parts referred to, but also of the intestines and other organs of the body. In those situations where there is the greatest degree of exposure to different causes of irritation, there will be, as might be expected, the greatest variety of morbid changes produced. Sometimes the ulceration of these membranes may proceed from the suppuration of tubercular formations. This is, I am convinced, very frequently the case with regard to the intestines; but even in these, in a great many instances, they are merely the result of chronic inflammatory action. From the great liability of the mucous membranes to vascular congestions, is, in some measure, to be explained not only their functional derangements during life in those affected with pulmonary tubercles, but also the morbid changes which they in so many different situations exhibit after death. It is in functional derangement of the mucous lining of the air tubes of the lungs, of the stomach and bowels, of the uterus and other parts, that the first symptoms of Consumption, in many instances, manifest themselves. In the scrofulous constitution, the mucous membranes would seem to be more liable to suffer, both from functional derangement and organic changes, than any other structures in the body; and it is, therefore, reasonable to expect, that, in tuberculous disease of the lungs, they should, in some one situation or in a great many, evince during life symptoms of disease, and after death exhibit a great variety of morbid changes.

During the progress of tuberculous disease of the lungs, the liver is very liable to suffer from vascular congestion. This is, however, more particularly the case when there is considerable difficulty presented to the circulation through the pulmonary vessels; but, notwithstanding this, it is an organ that does not appear to me to be very liable to undergo morbid changes during the progress of Consumption. Louis* states that he met with a kind of fatty degeneration of the liver, in a large proportion of

* *Recherches sur la Phthisie.*

the fatal cases of this disease which he examined. I have, however, met with it only in a very small proportion of patients; and, I am inclined to think, it is not by any means so common as that celebrated pathologist would lead one to suppose. This is at least true, unless one locality may be more favourable to its occurrence than another; and such might possibly be the case. In every instance where the liver presented the fatty degeneration in question in fatal cases of the disease of which I am treating, it did not appear to me to be in any way connected with that disease as cause and effect, but rather to be owing to a morbid change produced by the immoderate use of ardent spirits. I have in no one instance met with it, except in persons who had been for many years habitual drunkards, and who seemed to suffer from a great variety of diseases, as well as from that of the lungs.

The circulating system is subject to the greatest functional derangement, during a considerable portion of the time which elapses from the commencement till the termination of Consumption; but it is very seldom that the heart, which may be considered as the centre of that system, has suffered any morbid changes; and although it will be mostly found, that it is considerably reduced in size, still such reduction does not appear to result from any diseased condition, but rather from that wasting which is common to every part of the body.

The nervous, like the vascular system, notwithstanding the very great functional derangement to which it is subject during the progress of Pulmonary Consumption, yet does not exhibit any morbid changes, except in a very few instances. I have examined the brain in a great number of fatal cases of that disease, and I have seldom found it to present any morbid symptoms. It would appear, altogether, with reference to the morbid changes which are so frequently to be met with in fatal cases of Consumption, that they are more particularly confined to such organs as are most liable to suffer from scrofulous disease, independently of such disease occurring in the lungs.

The duration of Consumption varies very much in different individuals; and this is what is to be expected, on account of the different degrees in which tubercular formations in the lungs are liable to occur. For instance, in a case of tubercular infiltration, the powers of the constitution must give way at a much earlier stage of the disease, than when the tubercles are only few in number, and are situated at a considerable distance from each other; and, again, the rapidity of the progress of the disease must be much greater, when several organs, as well as the lungs, are all involved in the same morbid affection. There is certainly the greatest difference in the rapidity of the progress of Pulmonary Consumption in persons of different ages; and while it would, in all probability, prove fatal in the course of a very few months, at one period of life,—it would require, at an other, a number of years before the same would be the case; notwithstanding that, in both instances, the lungs were affected to the same extent. When two individuals are labouring under the same malady, no matter what it may be, it is most extraordinary how slow its progress will be in one case, and how rapid in another, when the amount of disease in both instances is nearly the same. The morbid affection which I am considering is, in every case, much modified with respect to its duration, accordingly as the patient is placed in circumstances which are favourable or unfavourable to the rapidity of its progress. Amongst those who are deprived of every thing necessary to preserve the body in a healthy state, as is the case in too many instances with the poor, it must necessarily prove fatal much sooner, than in those ranks of life where every external circumstance is rendered as favourable as possible to the maintenance of the general tone of the system. Every thing that tends to bring the body into a weak state, or to involve various parts in disease, no matter what that may be, will hasten the fatal termination; and it is therefore quite impossible, in different classes of society and places, to arrive at any thing like the truth, with regard even to the average duration of Consumption. According to calcula-

tions made by Bayle and Louis, it would appear, that in hospital practice, the average duration of this disease might be estimated at about eighteen or twenty months. This may be as correct a calculation as could be made in hospital, or any other kind of practice; but still, from the very great difficulty, which is presented to the physician in almost every case, of ascertaining the time of the commencement of tuberculous disease of the lungs, I cannot see how it would be possible to arrive at the truth, with regard to its duration.

That there are some cases of Consumption which terminate fatally in the course of a few weeks after the first symptoms of the disease manifest themselves, there cannot be a doubt; but that a fatal termination occurs so soon after the commencement of the tubercular formations, I am somewhat unwilling to admit. What is denominated *acute Consumption* is, I am satisfied, at least in many instances, a disease of a totally different kind. It is, in fact, nothing more nor less than a modification of pneumonia, resulting from a scrofulous temperament; and is therefore very different, in many respects, from the ordinary tubercular formations which take place in the lungs. I have never seen a case of what might be properly called acute Consumption, where the solidified portion of either one or both lungs was not somewhat uniform in its appearance; and with the exception that it differed in its colour and density a little from the ordinary solidification which results from pneumonia, it was the same in every other respect. I am quite satisfied, that, in almost every instance where the tubercular growths are distinct from each other, their formation had commenced a very considerable time anterior to any symptoms of their presence in the lungs being manifested.

Instead of the disease in question running a very rapid course, it is, in some instances, several years before it proves fatal; and long ere such result occurs, the health of the patient will suffer a great many changes. It will, for instance, at one time be pretty good, and at another exhibit all the local and general symptoms of Consumption: in such cases, the disease assumes a kind of

intermittent form. Bayle * states that he knew a case of this malady which was of forty years' duration; but, as to such a protracted case, I am inclined to believe, that no man could possibly say whether the pulmonary symptoms, during a very considerable proportion of the time, did not proceed from some other cause than that of the presence of tubercles. The very persons who are the most liable to suffer from such morbid growths, are those who are most subject to be affected with disease of the mucous lining of the air tubes of the lungs; so that it becomes a difficult thing, in many instances, to say positively whether the local and general symptoms of Consumption may not have proceeded, for a length of time, from a morbid condition of the membrane in question, independently of any other disease. I am quite convinced that there are very few cases of tuberculous disease of the lungs, which have not been preceded by repeated attacks of pulmonary catarrh; and as this, in consumptive temperaments, is particularly liable to assume the chronic form, it is the more likely to give rise to many symptoms, such as result from the presence of tubercular formations.†

The termination of Pulmonary Consumption was considered, until Laennec published his work on the diseases of the chest, in every instance fatal; but, since the researches of that eminent pathologist, it has been clearly ascertained, that the caverns, left after the discharge of pulmonary tubercles, may contract in such a manner, that their inner walls will become completely united, and thus a perfect cure will be the result. Again, when this union does not take place, the state of the interior of the caverns may be so far changed, that they will cease to secrete purulent matter, and may consequently cease to be longer injurious, either to the functions of the lungs themselves, or to the

* *Recherches sur la Phthisie Pulmonaire.*

† For much valuable information on this subject, see *Engelhard, Ueber die Lungensucht in ihren verschiedenen Formen und Zeitraumen.*

system at large. The proportion of cases in which either of these changes takes place in caverns left after the discharge of the morbid growths in question, is very limited; but this, I think, is principally owing to the small number of patients in whom they are only present in the lungs to a very circumscribed extent. They must, of course, when in considerable numbers, give rise to so much local and general derangement of the system, as will, after the suppurative process is established, speedily put an end to life.

The cicatrization of the caverns left in the lungs after the discharge of tubercles, is of very frequent occurrence when such caverns are of a small size, and surrounded with the pulmonary tissue in a healthy state. It is, therefore, only in those cases where the formations in question are remote from each other, and where the pulmonary tissue by which they are surrounded is in a healthy condition, that a natural cure in either of the ways which I have been considering will likely occur. I think, the complete solidification or cicatrization of such caverns is a far more common mode for nature to adopt in order to effect a cure, than that of the change of their inner walls, in such a manner as to put an end to any farther purulent secretion. In one patient, where the tubercles during life were expectorated at distant intervals, and in an imperfectly dissolved state, and where, at the same time, the progress of the disease was slow, I found, on examination after death, that a great many of the caverns had been completely solidified; but, with reference to the stopping of the purulent secretion, I did not, in this case, observe the least sign of any change in the inner walls of those caverns where cicatrization had not taken place.

CHAP. II.

ON THE PREVENTION OF PULMONARY CONSUMPTION.

On the means best calculated, during the Fætal and the Infant State, for preventing the Formation of a Constitutional Tendency to Pulmonary Consumption, or for removing such Tendency when it exists.

FROM the vast number of human beings carried off this stage of existence every year by Consumption, it is one of the most interesting inquiries to which the attention could be possibly directed, to find out some means for the prevention of its occurrence. Like many other maladies, it is more in the power of the physician to obviate it, by laying down certain rules for the guidance of those who are most subject to become its victims, than to remove it by any remedies which he could employ after it had once taken place. I have not the slightest doubt, that it is a disease which might become in these countries, one of the least, instead of one of the most common occurrence, if such rules as would be most effectual for its prevention, were only carried into effect. It is certainly a most extraordinary circumstance, that persons, when once brought to feel the pain arising from some bodily disease, can be, in many instances, easily induced to swallow the most nauseous draughts for its relief; but when they are told that the adoption of a few simple rules would, in all probability, obviate its occurrence altogether, it is only in a very limited number of cases that they will carry them into effect; and hence we find that, although a disease might be easily prevented, yet, no matter whether this is to be accomplished by the use of certain kinds of food or drink, or how it is to be effected,

it is exceedingly difficult, in almost every instance, to get individuals possessed of sufficient perseverance to derive from the different preventive means all the advantages which they are capable of affording.

As Consumption is one of those maladies which is frequently owing to a peculiar organization of the body derived by the child from either one or both parents, it is quite clear, that it is one which must be very common as long as there is no prudent restraint on marriages between persons of consumptive temperaments. I do not think it, however, at all probable, that, in these countries, where it is so very prevalent, and so very destructive in its effects on the fairest, and often most promising, portion of the human race, it will ever be rendered less so by any thing that can be written with regard to the impropriety of individuals becoming parents, unless they are possessed of healthy constitutions, and are thus likely to transmit similar constitutions to their offspring.

Although one or both parents may be very much predisposed to Consumption, yet it is possible, by strict attention to every thing necessary to impart tone to the body, that it may never manifest itself in the child. I do believe, that there is no period of life so very important, with respect to a vigorous organization of body, as that which elapses from the first formation of the embryo, till it has acquired such a degree of development as to fit it to live independently of its maternal connexions. It is owing to what occurs during this stage of existence, that I conceive, in nine cases out of ten, a child is born with a strong or weakly constitution, or one which is liable, in proportion as life advances, to fall into various kinds of disease; so that, in guarding against the peculiar debility of the system which is favourable to the formation of pulmonary tubercles, it is necessary it should be done at a very early period of life, and while the development of the body is going on with the greatest degree of rapidity in a given time, as is the case during the foetal state. From the circumstance of what are denominated *hereditary diseases* being trans-

mitted by either the father or mother to the child, it is quite evident, that, from the very beginning of its formation, it must have been endowed with internal powers and actions of a peculiar kind; but, while this is certainly the case, these may be either wholly or partly modified by the nature of the nutritious principles which it receives from the mother during the foetal state. It would appear to me, that in every case of debility of the solid parts of the body, there must be a great difference in the fluids from what occurs when the various solids are in a vigorous state; and farther, that every such weak state, when it is of a specific kind, is accompanied with some peculiar change in the fluids. It would therefore seem, that, while the child remains *in utero*, and is entirely dependant upon the mother for its nourishment, every thing tending to weaken the solids of the latter will, at the same time, to a very considerable extent, alter the qualities of the fluids which must afford sustenance to the former.

It would be very easy after the child is born, and is no longer necessarily dependant upon the mother for the materials of its nourishment, to supply it with food possessing such nutritious qualities as are nearly the same at all times; but this can never be the case, while the uterine and foetal connexions subsist. We therefore find, that every thing producing changes in the strength of the solid parts of the parent, will, in like manner, occasion similar changes in the child; while it enjoys no possible medium of getting those materials which are necessary for the growth of its body, except such as results from its uterine relations.

From what has been said relative to the child while it remains *in utero*, it must appear, that, in order to obviate the consumptive constitution, very considerable care must be taken, during the whole term of pregnancy, to keep the system of the mother in a vigorous state; for if this be neglected, no matter how free the foetus may have been from any constitutional tendency to it at the commencement of its growth, it may be generated long ere it is fit to live independently of its maternal connexions. I am quite satisfied, that, if it were generally known, the healthy state

of a female during utero-gestation might prevent the development of pulmonary tubercles in the offspring, and that, on the contrary, a diseased or debilitated state might give rise to these formations, there would be far more care taken than we find to be the case, in a great majority of instances, to preserve females, while in that condition, in a vigorous state of health. It would be out of place for me to detail here the different means which are best calculated to keep a female in the most healthy state during pregnancy, and thus prevent the early formation of a weak constitution in the child. I think it necessary, however, to say, that by a proper attention to the bodily and mental health of a female while pregnant, more may be done to guard off tuberculous disease of the lungs in the offspring, than by any preventive means which can be employed after birth.

While there is very considerable danger of the child, before birth, suffering in consequence of the nourishment which it derives from the circulating fluids of the mother, there is also very great risk of the same occurring after birth, in consequence of that fluid which it receives from the breast, and which is its proper sustenance for a certain length of time, being in some way or other unequal to the maintenance of its healthy actions. There is, unquestionably, at and even for some months after birth, no food so good for a child as that of the mother's milk, when its quantity and quality are such as to render it adequate to the healthy support of its system; but it unfortunately too often happens, that in neither of these respects is it fit for fulfilling that object.

No female possessing a consumptive or scrofulous habit of body should be allowed to suckle a child, no matter whether it be her own or not, as she could not possibly supply it with that nourishment which would be in any way fit for it to receive. I am quite satisfied, that a wet nurse of a consumptive temperament may, in many instances, impart the same to the most healthy child, and one whose parents were never known to have been sufferers from tuberculous disease of the lungs. It is no

matter whether a child be supplied with improper nourishment before or after birth, as the same debility of the system, in either case, will be produced. I am, therefore, inclined to think, that, while a child after birth derives its supply of food mainly from the female breast, its constitutional powers are as likely to be affected as while it remains in the womb of its mother; and hence the great impropriety of allowing it to be suckled by any person of a consumptive constitution, whether it be the mother or not. If a child, which is born of consumptive parents, be placed, immediately after birth, under the care of a kind and judicious nurse, who is quite free from any tendency of the same kind, there is a very great probability it may grow up to maturity with a sound constitution, and that the temperament which it inherited to a greater or less extent from its parents may be totally removed; but if, on the other hand, it be under the necessity of deriving the greater part of its supply of nourishment from its mother, or from a nurse possessed of a similar constitution, it will, in nine cases out of ten, exhibit early indications of a scrofulous tendency; and, in all probability, it will even fall a victim to tuberculous disease of the lungs, long before it has reached the age of maturity. In consequence of my connexion, for several years past, with an extensive Lying-in Charity, I have enjoyed the most ample opportunities of ascertaining the effects resulting to children from their early supply of food being either defective in quantity or vitiated in quality; and I am well satisfied, that in infancy, by such causes, the habit of the body which I am considering is not only in a great many instances confirmed, but that it is also generated when it did not exist at birth. It should be remembered, that the seeds of disease may be sown in the constitution either before or shortly after birth, and that they will not, in all probability, germinate and grow up, so as to manifest their characteristic form, until mature years.

Although there is no food so well calculated to nourish a child, for several months after birth, as that which is supplied by the breast of the mother, yet where a female of a consumptive consti-

tution must nurse her own child, it is much better, that, while very young, it should get some other nourishment. If there should be much delicacy of constitution on the part of a mother, no matter whether such should be the result of the constitutional temperament of which I have been treating or not, it is necessary, for the health of the child, that it should be removed from her at as early a period as possible after birth, and be placed under the care of a nurse possessed of a vigorous state of body, and capable of supplying it with a more abundant, and, at the same time, with a more wholesome sustenance. This is, however, certainly far more imperatively called for when the mother is of a decidedly consumptive habit. When such a change as this is not practicable,—as is unfortunately too often the case,—it is then much better, that its principal food should consist, from a very early age, of something that will be suited to the naturally weak state of the digestive organs, which is common at such a period of life. The food which I have always found to be the best substitute for that which an infant should receive from the breast of the mother, is a solution of arrow root in equal parts of new milk and water. The proportion of the arrow root to a given quantity of milk and water should be very small, as it agrees much better, and is altogether a much more suitable substitute for the natural food when it is made light, than when it is too consistent. I have always found the addition of a small quantity of loaf sugar an improvement; but brown sugar, in any proportion, is highly injurious, inasmuch as it is a great deal more liable than the white to produce acidity of the stomach and bowels.

If a child, at a very early age, be allowed food of a weighty or indigestible nature, it will be found, no matter what the natural tone of the system is at birth, that it will, in every instance, reduce it, on account of the very weak assimilating powers which always exist during the infant state. I think there could not possibly be a greater error committed,—and it is one which I fear is of too common occurrence,—than that of over-loading the stomachs of very young children. While in the infant state, the

debility of the system which favours the development of pulmonary tubercles in youth or in middle age, is increased or produced by the use of the mother's milk, when it is either deficient in quantity, or vitiated in quality. The early employment of weighty or indigestible food—no matter what that food may be—is also, I am well satisfied, a very common cause of constitutional weakness, and of course is favourable to the production of the disease in question. It would, on these accounts, appear to be a most difficult thing, in the infant state, to proportion the quantity of food to the wants of the system, and also to regulate its quality according to what each particular state of the body may demand.

There is nothing in early life worthy of greater attention than that of the state of the intestinal canal; for no matter what the quantity or quality of the food may be, or how well it may be adapted to the nourishment of the system, it will not prove favourable to the healthy growth of the body if the assimilating organs be very weak, or if their actions be in any way so impaired that they cannot produce the requisite changes on it, so as to fit it for the purpose of nutrition. It is, therefore, absolutely necessary, that, while the powers of the body are considered as a whole, they should be also regarded with reference to the individual organs, but more especially to those which are concerned in preparing the food for supplying all the wants of the system. In children which are born with consumptive constitutions, it should be always kept in mind, that the stomach and bowels are not possessed of such powers as they generally have when that constitutional tendency does not exist. It would thus appear, that in those who are predisposed to tuberculous disease of the lungs, there is in infancy a general weak state of the body; but the digestive organs are more affected than any other parts.

At a very early age, the stomach and bowels are always possessed of a remarkable degree of irritability; and, in consequence of this, they are often, for several months after birth, easily excited to morbid actions. It will be found, that although this

irritable state of the bowels is a thing common to all children, yet it is much greater when there is a scrofulous temperament of body, than when the natural powers of the system are good, and when there is no such constitutional tendency. This has been the case in almost every instance where I have had an opportunity afforded me of forming an opinion on the subject. No matter what food an infant gets, or how suitable it is for its nourishment, if the actions of the intestinal canal be carried on with too much rapidity, it will not contribute sufficiently to supply the wants of the body, and a general state of weakness will be the result. I am quite satisfied, that diarrhœa, at this period of life, is a very common cause of such a debilitated state of the system as will favour, during the progress of life, the development of pulmonary tubercles; and this, I have no doubt, is frequently the case, when the child at birth is perfectly free from any thing like a consumptive temperament. On these accounts, it would appear to me, that, in order to obviate the formation of such a habit of body in infancy, or to prevent its becoming stronger when it existed before birth, it is absolutely necessary, not only to pay a proper degree of attention to the quantity and quality of the food, but also to watch the state of the intestinal canal; so that, when it acts too feebly, it may be strengthened; and when, on the other hand, its actions manifest too great a degree of activity, they may be brought down to a healthy state.

Of the opposite conditions of torpor and over-excitement of the bowels, I am quite convinced, that the latter, in the infant state, is far more likely to aggravate or generate a consumptive tendency, than the former. The fact is, no matter at what period of life a looseness of the bowels occurs, it produces a prostration of the powers of the system; but this must be particularly the case in early life, when the body requires a more frequent renewal of nutritious particles, than it does at a more advanced age; and whatever, therefore, tends to check the process of assimilation, must, of course, have a more injurious effect. I have repeatedly seen an attack of looseness of the bowels, at the age in question,

suddenly followed by the development of tubercles in the mesenteric, cervical, or absorbent glands, situated in some other parts of the body, so that it evidently favours, either immediately or ultimately, tubercular formations. For some time after birth, or during what may be called the *infant state*, instead of the bowels acting in the manner I have just mentioned, they are in a very torpid condition. The last-mentioned state of the bowels in early life is, however, comparatively of very rare occurrence, unless some other food besides that which is afforded by the breast of the mother be used; but, be this as it may, there cannot be a question that, at this stage of life, a constipated state of the bowels tends very much to weaken the tone of the system, and consequently to favour, in after life, the formation of pulmonary tubercles.

An idea, I fear, prevails too frequently, with reference to the bowel complaints of children, that they are of little consequence, unless they produce some evident morbid impressions on the system. Now, in early life, there may be no very prominent sign of any general injurious effects which such complaints are producing on the body, and still they may, and very frequently are, undermining it, while nothing of an external nature would lead a person to suppose that it is in any way suffering such a reduction of its physical powers as would likely lead, at any future time, to the production of Pulmonary Consumption.

The healthy condition of the body is, at every age, very much influenced by the purity of the air which is respired; but this is more particularly the case during infancy. There could be no habit more injurious to the health of an infant, than that of covering its face while asleep, or allowing it to lie in bed in the arms of the mother or nurse; for, in the one case, it must respire that air which it has vitiated itself, and, in the other, that which is rendered impure by the mother or nurse. Instead of allowing very young children to breathe in an atmosphere which contains any noxious impregnations, they should, at all times, be supplied with air as pure as possible; and although this is certainly

necessary in every case, yet it becomes more particularly so, when it is suspected, that they have inherited from their parents a strong predisposition to Pulmonary Consumption. It does not signify how strong the natural powers of the system are in infancy, or how favourable they appear to be to a healthy growth, as they may be so far impaired by the respiration being carried on in an impure atmosphere, that, at a very early age, a scrofulous temperament will manifest itself, although there was no reason whatever to suppose that it existed from birth.

I am of opinion, that, with respect to a reduction of their constitutional powers, a very great proportion of children are injured as much by their breathing in an impure air, as they are by the use of improper food. In the one case, the injurious effects may be much more prominent than in the other, and may thus be more liable to arrest the attention; but, notwithstanding this, they will prove in the end to be essentially the same in either case. I think, in every instance, but more especially in such infants as are considered at birth to be possessed of weakly constitutions, every possible effort should be made, that they may breathe in an atmosphere which is as free as possible from every species of impurity, and which will contribute, as far at least as the respiratory function is concerned, to impart a salutary degree of tone to the body. It is very difficult for the poor, who are generally under the necessity of lying together in great numbers in ill-ventilated apartments, to adhere to any rule laid down relative to the air which is most suitable to be respired during infancy; but in the more comfortable classes of society, where they can keep their children in large and well-ventilated apartments, there cannot possibly be any excuse for not carrying into effect what would appear to me to be of the greatest importance, not only to infants of consumptive constitutions, but also to those who are quite free from any tendency of such a kind.

With regard to the early management of children, there is very considerable difficulty in keeping the surface of the body so covered, that the heat will neither rise too high nor sink too low,

in the ever-varying state of the temperature of the surrounding medium in these countries.

While, in infancy, the system is easily excited on the one hand, it is easily depressed on the other; so that any excess, either of heat or cold, could not fail to prove highly injurious. It is wonderful what difference there is in the powers of generating heat in a child shortly after birth, and in a person of more mature years; so that while in the latter a very light covering would be sufficient to preserve the temperature of the body in a state compatible with its vigour, in the former a much weightier one would be necessary to fulfil the same end. It would be quite impossible to lay down any definite rule, as to the quantity or quality of clothing that would be necessary during the infant state; as, in both respects, this must be regulated accordingly as the powers of generating heat are high or low, and as the temperature of the surrounding medium is such as to require much or little external covering. The idea, that very light clothing is, at an early age, more favourable to a vigorous condition of the body than that of a weightier kind, is perfectly correct, when the surrounding medium is very warm; but the half-covered state in which children are often kept during the prevalence of cold weather, and while only a few months old, will, I think, so far from giving tone to the body, have just the opposite effect, of producing debility. I am, therefore, altogether of opinion, that, if those who have the charge of infants were more careful to adapt their clothing to the different seasons of the year, and to the various wants of the system, there would be generally a more vigorous state of the body produced, and one which would, as life advances, be much less likely to suffer from tuberculous disease of the lungs.

While in very young children it is absolutely necessary, for the purpose of preserving the health in a vigorous state, to proportion the quantity and quality of the clothing to the wants of the system,—it is, at the same time, requisite to guard against any part of the dress being so tight as to impair any of those func-

tions or actions of the body, whose healthy state it is intended to preserve. It was a very common thing, not many years since, for nurses to make some parts of the dress of very young infants so tight, as to produce the most decidedly injurious effects. It should be kept in mind, that whatever tends at the age which I am considering, or at any other period of life, to impair the actions and functions of any one organ of the body, will ultimately affect the whole, on account of the close connexion which subsists between all its different parts.

Cleanliness is conducive to health at every period of life; but in infancy it would seem, if possible, to be even more so than at any other age, owing, I should think, to the greater sensibility of the skin, and its greater liability to suffer from any irritating impressions. That cutaneous irritation which is of such common occurrence in very young children, on account of their not being able to attend to their sensations, is productive, in very many cases, of the greatest mischief; and hence it is necessary, on account of the great sensibility of the skin at an early age, that nurses should be far more watchful than they generally are, with respect to every species of cleanliness. I do not know any one thing, when the constitutional powers are low, that would be more likely to render them still more so, than that of inflammatory excitement, such as that in question, no matter how trifling it might appear to be, or how limited with reference to the part affected. I am quite satisfied, that there are many infants, whose constitutions are perfectly good at birth, and, at the same time, are quite free from any scrofulous tendency, who afterwards acquire that temperament of body, not from any want of proper food, clothing, or any thing else which could contribute to the healthy condition of the system, except that of due attention to cleanliness, with respect to the surface of the body; and again, when there is a constitutional predisposition to the various forms of scrofula, there is nothing that would be more likely to bring them into action at a more advanced period of life.

There cannot be a doubt as to the great advantages which

result from the regular ablution of the surface of the body in infancy. I think, however, that it is a thing somewhat questionable how far a very low temperature of the water, employed for that purpose, is profitable for the maintenance of the healthy tone of their systems. Owing to the powers of generating heat not being nearly so strong in early life as they become in more mature years, the water which is used for the ablution of the surface of the body should never be lower, at least for several months after birth, than can be borne without the production of much chilliness; for should this not be strictly observed, it would certainly do far more harm than good. It may be laid down as a general rule, that every thing which suddenly lowers the tone of the system, no matter what it may be, is to be viewed as a predisposing cause of Consumption, and should be therefore avoided as such, from the moment the child is born.

From what has been said relative to the infant state, it must appear, that it is a very important period of life, inasmuch as it is one during which tuberculous disease of the lungs may either be favoured, or, to a very great extent, prevented in after life. It is almost always the case, that, in proportion as children advance in age, in the same proportion they become less liable to suffer from debilitating impressions.

With reference to the infants of those who enjoy all the comforts of life, it is very easy to carry into effect any directions which are laid down respecting food, air, exercise, clothing, or any other thing which is requisite, at that stage of life, for the purpose of giving tone to the system; but the same is not the case with the poor, who, in ninety-nine cases out of a hundred, cannot possibly provide for their infants almost any one thing that would be suitable for their tender age. It is a melancholy thought, that a considerable proportion of those who fall victims to Consumption, do so from the circumstance of their being deprived, while very young, of almost every thing requisite for the purpose of giving a healthy tone to their systems. The fact is, by proper care a child that has a strong tendency at birth to

the disease of which I have been considering, may gain such a degree of strength, that it will never manifest itself; and again, when no such tendency exists at birth, various debilitating causes will, in many instances, bring it into action at some time during the progress of life.*

On the best mode of preventing, during Childhood, Adolescence, and the succeeding stages of life, the formation of a Constitutional Disposition to Pulmonary Consumption; and also of preventing the occurrence of the Disease when such disposition, whether natural or acquired, exists.

FROM the foregoing observations it is not to be understood, that, after the termination of one or two years, there should not be the greatest care taken to preserve, by suitable food, pure air, exercise, and other means, the vigour of the system. The truth is, that although the disease of the lungs, which I have been considering, proceeds, in a great proportion of cases, from a peculiar habit of body, which is generated or aggravated during the fœtal or infant state by certain debilitating causes; yet the same is to be considered the case, but in a less degree, by every thing that tends to lower the tone of the body at every subsequent period of life. This would seem, however, to be more particularly the case from the second till the fifteenth or sixteenth year, or, in some instances, till the eighteenth or twentieth.

It is no matter at what period of life we consider the organs of assimilation, there cannot be a question that, in proportion as

* For some excellent general observations on the management of children during that stage of life of which I have been treating, see *Gardien, Traité Complet d'Accouchemens, et des Maladies des Filles, des Femmes, et des Enfans.* Tome Quatrième.

they are strong or weak, in the same proportion, provided the food be of such a kind as is suitable to their powers, the rest of the system will be rendered susceptible or not of falling into various diseases of a scrofulous nature. It would therefore appear, that, notwithstanding the prevention of a consumptive habit of body is, in many instances, to be accomplished at a very early stage of existence by the use of such articles of food as are suited to the powers of the digestive organs, and, at the same time, are best calculated to nourish and impart a certain degree of tone to the system, the same is the case through every stage of life. It is a very mistaken idea,—and it is one which very generally prevails,—that the use of animal food is improper at every period of childhood. I am quite satisfied, that errors are very frequently committed by allowing children to use too much animal food, but, more particularly that of a weighty or indigestible nature; but on the other hand, I am quite convinced, that the use of a proper proportion of such food, when it is of a suitable kind, and is properly cooked, invigorates the system ten times more than any other food which can be given. A diet consisting almost exclusively of vegetables, no matter how nutritious it may be of its species, is not that which is profitable, or even safe to children, but more especially to those possessing a hereditary predisposition to scrofula, or the tuberculous disease of the lungs in question. Potatoes—which are, in these countries, in many instances, almost exclusively the food of the poor, from a very early period of life—are, I have no doubt, in various cases, the cause of much weakness of the system, and are consequently to be regarded as most favourable for the purpose of bringing the body into such a state as to render it liable to suffer from tuberculous disease, in some form or other.

I do not think, that solid animal food is well suited to the digestive powers of children; and it would seem to me, that it should be, in almost every instance, a fluid extract obtained from it by long boiling, that they would be permitted to use. This should be at least the case, until after they have arrived at

five or six years of age. Soup, prepared from the lean of beef or mutton, is the only kind of fluid extract of animal food that is at all likely to agree with the stomach and bowels at a very early age; for that which is obtained by boiling almost every species of fowl is liable to disagree, and consequently, on that account, so far from contributing to the healthy nourishment of the body, would have the very opposite effect of diminishing its strength. Although, in proportion as manhood approaches, the powers of the digestive organs become stronger and stronger, so that solid animal food, such as I have just mentioned, can be assimilated with more ease; still I am inclined to think, that, both before and after the human body has arrived at its full maturity, the greatest errors are committed, with respect to too much animal food being taken in the solid, and too little in the fluid form.

At whatever stage of existence man is considered, it should be remembered, that he cannot possibly possess a vigorous state of the organic parts of his body, unless the food which he takes be suited to the powers of his assimilating organs, and, at the same time, when it has been changed, by the peculiar actions of these, as to be fit to supply the waste of the body, or contribute to its growth, that it may give rise to a certain degree of tone. Now, if it be requisite that, in every individual case, the food should be suited to the powers of the organs of assimilation, and, at the same time, to the various wants of the system; this must be more particularly the case, when a constitutional tendency to such a disease as that in question is known to exist. In considering the food which is best calculated to prevent the formation or the aggravation of a consumptive habit of body, no matter at what age we set out, we will find that it is no easy thing to regulate it in such a manner, as to fulfil the object in view; because in such habits, the digestive organs are possessed of even much less strength, in proportion, than any other parts of the body: and hence the very great liability of a physician committing the greatest errors, with reference to the quantity or quality of ali-

mentary matter, which will prove most salutary under such circumstances.

While, in the consumptive temperament, it requires much attention to be paid to the nutritious and tonic qualities of the food, it is at the same time necessary to guard against an overloaded state of the stomach and bowels; for I am not acquainted with any one thing that tends so much to debilitate the system, as a larger quantity of food being taken into the stomach than it can properly assimilate. It is certainly no easy matter to proportion the quantity of food to the powers of the digestive organs, and, at the same time, to the divers wants of the body; and though this is the case at every period of life, still it is more particularly so before the body has arrived at its full maturity. From the circumstance that the appetite for food in early age is much greater than it becomes at a more advanced period of life, it will be found that there is more danger in the former than in the latter case, of the quantity of aliment taken in a given time being disproportioned to the powers of the organs of assimilation; and hence we find that the greatest vigilance is requisite, on the part of those who take charge of children, to prevent repletion of the stomach and bowels. In most instances it will be found, that in scrofulous children the appetite for food is remarkably keen, and, in fact, in nine cases out of ten, entirely disproportioned to the powers of those parts by means of which it is fitted for the nourishment of the body. Now, as nothing has a more debilitating effect on the stomach and bowels than that of their overdistention, it is quite evident, that—when the object during childhood, or during any subsequent period of life, is to remove or prevent the formation of such a habit of body as that in question—there must be the strictest attention paid, that whatever alimentary matter is introduced into the stomach be completely changed, so that all the nutritious principles may be applied to the various wants of the system. Although there is a particular quantity, as well as a particular quality of alimentary matter, in every case necessary, in order that the system may be kept in a

vigorous state; yet it is certainly not by any means in proportion to either of these, that its healthy nutrition takes place. From all this it would appear, that the quantity and quality of the food, and the powers of the digestive organs, must be all taken into consideration when the object which the physician has to accomplish is that of preventing the occurrence of scrofula, in various forms, or merely in that of tuberculous disease of the lungs, which I am now more particularly considering.

I have already stated, that looseness of the bowels in infancy is a thing of frequent occurrence, and that it is liable to produce such prostration of the system as will have, sooner or later, the most disastrous effects, particularly when there is naturally a weak state of every organized part of the body, of such a nature as is likely to terminate, in proportion as life advances, in tuberculous disease of the lungs. Now the same is precisely the case at various other stages of life; so that it will be found, at all times when there is known to exist a constitutional tendency to Consumption, that a loose state of the bowels is very liable to bring the disease into action. From the second till the twelfth year, it will be mostly found, that the irritability of the bowels, although much less in general than in infancy, or in very early childhood, is much greater at every age before puberty, than it becomes afterwards; so that the state of the bowels referred to is to be considered as being far more frequently productive of a great degree of constitutional debility before, than after the growth of the body has been nearly completed. If physicians were to impress those who take charge of children with the danger resulting from a loose state of the bowels, I am quite satisfied, that the occurrence of various forms of scrofula, in an early or in a more advanced stage of life, would be comparatively rare in proportion to what they are in this country. It is, in most instances, the case, that in the consumptive temperament more care is required to prevent the occurrence of a loose state of the bowels, than in those cases where such a temperament does not exist. The fact is, wherever I find, but more particularly during childhood,

a strong tendency to such a state of the bowels, I am much afraid that scrofula will manifest itself, in some form or other, in proportion as life advances; but, while it would appear that the latter affection is frequently brought into action by the former, it would also seem that the former is very frequently owing to a constitutional predisposition to the latter. It would thus appear, that they may ultimately become cause and effect of each other.

While the greatest danger results from repeated attacks of diarrhœa occurring in those who are predisposed to Consumption, and while it is necessary, in order to prevent the occurrence of that disease, that special care should be taken to keep down as far as possible any morbid excitement of the bowels, it is also absolutely necessary that an opposite condition of torpor should be guarded against. In childhood it is very seldom that the bowels are constipated, if the exercise and food be such as are suited to that period of life; but again, during all the various stages of life which succeed to childhood, there are few cases where an inactive or constipated condition of the bowels is not frequently to be met with; and although this is more particularly so in the female sex, owing to their leading generally a much more sedentary life than the male, yet it is of too common occurrence in both. A constipated state of the bowels is a thing so very common, that it receives, in very few instances, much attention on the part of a patient himself, or that of his physician, unless it should become so extreme as to give rise to some morbid affection which may render a temporary interference necessary. Now, notwithstanding that the state of the bowels in question may not seem to a patient, or to his medical attendant, to be productive of much constitutional mischief; still the powers of the system may be suffering a gradual reduction, and be ultimately so far impaired that a consumptive habit of body will be generated in consequence, or else, when it already exists, the formation of tubercles in the lungs will be brought into action. It will be found in almost every instance, where that state of the bowels which I am now considering exists, that the

respiratory function is carried on with much less freedom than when they are acting with regularity, and with the requisite degree of activity; and hence there is not only a general, but also a local tendency thus produced to the tubercular formations in question. Nothing has a more decidedly injurious effect altogether, in whatever manner it be viewed, than that of a constipated state of the bowels in those who are at all predisposed to Consumption; and it should be removed as speedily as possible, whether it be present in childhood, or at a more advanced age. I do believe that there is scarcely any thing so difficult to accomplish as that of getting persons of a costive habit of body to pay strict attention to any plan which the physician may suggest for its removal; and notwithstanding all that can be said relative to its injurious effects, still it will be neglected, in many instances, to a great extent.

It would appear, that during the infant state, there is very considerable difficulty experienced in adapting the clothing to the powers of the system; and the same is the case through every subsequent period of life. In the lower classes of society, there must be, in all cold, damp countries, the greatest reduction frequently produced in the powers of the system, on account of their insufficient supply of clothing, during both the day and night. This will be, of course, much more injurious during the latter than the former; as the body, while asleep, is far more susceptible to debilitating impressions, than it is during the waking hours. It does not signify when the injurious effects resulting from an inadequate supply of clothing take place, they will be found to be of very frequent occurrence, and, in very many instances, will be of themselves sufficient, where a predisposition to the disease exists to bring it into action. Although in the more comfortable classes of society, as far as quantity and quality of clothing is concerned, there need be no injury inflicted on the powers of the body; yet we frequently find, that the very contrary of this is the case, and, in order to comply with some prevailing fashion, the dress is rendered totally unfit for particular

seasons of the year, and particular powers of the system. The great objects to be fulfilled by the use of dress, with reference to the prevention of Consumption, is the maintenance of the strength of the body, and the prevention of local inflammatory excitement of the respiratory organs. Now, for the purpose of accomplishing these important ends, it is quite necessary, when there is known to exist a strong predisposition to this disease, that the covering of the body, during both the day and night, should be sufficiently warm to prevent all the debilitating effects arising from the operation of cold. It should be strictly enjoined, in every instance where there is a tendency to the disease in question, that the dress should not be suddenly altered on the occurrence of changes, with regard to the temperature of the atmosphere. It is, in fact, more particularly in such changes of dress, that persons predisposed to tuberculous disease of the lungs are liable to suffer. With regard to the quality of the dress, it will be found, that a very light woollen covering worn next the skin will do more good than a covering of a similar kind, though infinitely thicker, if not worn in such a manner. I think there is a much greater want of attention to the proper defence of the surface of the body in childhood, than there is at a more advanced period of life; and on this account, the disease which I am considering is frequently brought into action long before the age of puberty has arrived, though a disposition to be affected with it existed at birth only in a slight degree.

The wearing of tight-laced stays—notwithstanding that it has been for a great many years quite common amongst females, from an early age, in almost every civilized part of the world—has certainly the worst possible effects on those who are at all predisposed to Consumption, not only on account of its diminishing the capacity of the chest, and thus preventing the complete development of the lungs, but also by its disordering, to a certain extent, the viscera contained within the abdomen. It was intended by the Author of our being, that some artificial covering for the body should be provided, and that this should vary in different

parts of the world, accordingly as they are of a high or a low temperature; but it was never intended that any article of clothing should become, instead of a protection to the natural powers of the system, a cause of one of the most fatal of all other diseases. In the earlier ages of the world, the clothing was almost invariably worn loose: there was, at least, no tight lacing practised amongst females, as has been the case for a considerable time past; and I think there is every reason to believe, that, when this was the case, tuberculous disease of the lungs was of very rare occurrence, in comparison to what it is at the present time. It would certainly be quite unfair to conclude, that it is altogether owing to such cause that this disease is so much more common at present than it was in the earlier ages of the world; but, while this is the case, there cannot be a question that every thing compressing the chest and abdomen must necessarily give rise to the most injurious effects. It is therefore necessary in every instance, but more particularly in early life, or while the body is continuing to grow, that no tight lacing should be practised. When the walls of the chest are very flexible, as is the case in childhood, external pressure must be far more decidedly hurtful in its effects than when they have acquired a considerable degree of solidity. It should be remembered, that the thoracic parietes are proportionably much more flexible in children of a strongly marked scrofulous temperament, than where such a habit of body does not exist; and they are, consequently, much more injured by the same degree of pressure. It will be found that, in children of the temperament in question, the slightest pressure applied to any part of the chest has, in consequence of its extreme flexibility, the effect of producing various degrees of distortion. It would therefore appear, that although the practice of tight lacing is injurious at every age and in every constitution, yet this is more especially the case when what is called the *consumptive* or *scrofulous diathesis* prevails; and it is consequently in such a habit to be more guarded against.

Although the long-continued application of cold to the surface

of the body is productive of the most depressing effects, the very opposite of this is the case, when its application is only of short duration. I do not believe, that any single remedy has been more employed for many years past, with the view of giving a certain degree of tone to the system at different periods of life, than that of cold salt-water bathing. I think there cannot be a doubt, that the application of cold salt-water to the surface of the body has the best effects in childhood, in invigorating the system in every part, and in thus removing a scrofulous tendency when it exists. There is certainly, however, a good deal of the benefit which is said to result from the use of salt-water bathing, owing to the air and exercise with which it is combined. It is sometimes surprising how soon a child, exhibiting all the symptoms of scrofula, will change its appearance to that of the most vigorous state of health, by the air and exercise which it enjoys in the neighbourhood of the sea, independently of bathing. Notwithstanding this is the case, still I am led to believe, that the cold salt-water bath will act as a most powerful auxiliary to the air and exercise. This will be, at least, the case in those instances where its temperature and duration are exactly proportioned to the powers of the system. I am quite convinced, that many children suffer the greatest reduction of their vital powers, instead of a salutary increase, by a bath being either too cold or of too long duration. If the temperature should be so low as suddenly to sink the powers of the system, and, in consequence of this, be followed by much languor and chilliness, it could not possibly have a profitable effect, where the object the physician has in view is that of an increase of the general strength. I am quite satisfied, after much attention to this subject, that even in the warmest weather during summer, a cold bath, whether taken in the open sea or not, should never be of more than two or three minutes' duration; and, when a child is of a weak habit of body, it should be merely immersed once or twice in the water, and afterwards immediately dried and dressed. All the good effects which would appear to me to

result from cold bathing, are obtained by the first impression which is made on the body after it is plunged into the water. It is highly improper to bathe weakly, scrofulous children, during the prevalence of cold weather; for it will almost invariably be found, that the sudden depression which they must suffer in such cases, no matter what its duration is, will be quite at variance with the objects which are to be fulfilled by its use.

With reference to cold salt-water bathing, as a preventive means against the occurrence of Pulmonary Consumption, I think it is applicable as such only at an early period of life; for, after the body has arrived at its full maturity, or at least from the age of puberty, when the tubercular formations in the lungs are most liable to take place, I do not believe that it is at all a profitable, nor even, in the great majority of cases, a safe remedy, on account of its giving rise to too great a determination of blood towards the interior of the chest. I therefore fear, if it be not employed as a preventive means against the occurrence of the disease in question while the lungs only participate, as it were, in the general weakness of the rest of the system, that very little good, but, on the contrary, much harm will be done, if it should be used after a strong disposition in the pulmonary organs to tubercular formations has once taken place. Before the formation of tubercles has actually occurred, there is usually a tendency in the part which is about to suffer from their presence, to an unusual degree of vascular congestion; and it is this that the application of cold to the surface of the body is so liable to increase. This is the case, though the impression which it produces is of the shortest duration consistently with the employment of the cold bath at all. There are no patients so extremely sensible to the impressions of cold, as those who possess a strong constitutional tendency to Pulmonary Consumption; and it will be found in the adult, as well as the child, that where a cold bath is employed, its temperature should not be very low. Nothing is liable to greater variety, than that of the temperature of sea water at different depths, and also at

different seasons of the year; so that while at one time much chilliness will be produced, at another it will be almost immediately succeeded by a glow of heat over the entire surface of the body. It is with cold bathing, as with many other remedies which are employed for the prevention or cure of diseases, it is quite impossible to say, before a trial has been made, whether it will be profitable or not.

Although a very great deal has been said in favour of the sponging of the chest and neck, for the purpose of preventing the occurrence of tuberculous disease of the lungs; yet I am quite persuaded, that it will, particularly if practised during the winter season, be productive of far more harm than good. It is used generally with the view of preventing catarrhal affections; but it should be remembered, that such affections are seldom produced by exposure of the surface of the chest to cold; but, on the contrary, the lining membrane of the trachea and ramifications of the bronchi, is the part on which the injurious impressions in such a case are first made.

For the purpose of invigorating the system, and thus preventing the occurrence of Pulmonary Consumption, as well as various other diseases resulting from debility, the good effects of different kinds of exercise have been long known. Amongst the Romans gymnastic exercises were considered, of all other means, those which were the most generally useful for the purpose of imparting a high degree of tone to the system; and hence they practised them from a very early age, and with the most happy effects. ⁶⁹ Young children, owing to the weak state of their locomotive organs, are unable to take much active exercise. It is therefore quite impracticable, during such a period of life, for almost any exercise to be taken, except that of a passive kind. I think, notwithstanding the beneficial effects of passive motion of the body when carried to a certain length, that, if carried beyond this, so far from becoming a means of invigorating the body, it will, on the contrary, be productive of much debility. At an early age much sleep is required; and if it be too much inter-

rupted from any cause, nothing will compensate for its loss. On this account, I am inclined to think, that during the hours of sleep a child should be allowed to remain without suffering any motion of its body. Independently, therefore, of the interruption to sleep which passive motion sometimes occasions, I think, allowing it to be carried about in the open air when asleep may have, in many instances, the most dangerous effects. It is well known, that during this state there is great general relaxation of the body, compared with what is present during the waking hours. Now, it is on this account, that very young children, but more particularly those possessing scrofulous constitutions, are liable to suffer much from cold; and hence we find that, from exposure to cold in this way, they frequently, during sleep, contract diseases, whose effects will prove, in all probability, most disastrous at such an early age. If it be at all suspected, that a child is possessed of such a temperament as will likely lead to the development of tuberculous disease of different parts of the body, it is necessary to guard against all exercise which would be at all likely, by the production of different diseases, to promote such a constitutional tendency; but, while this is the case, it is at the same time absolutely requisite, that, from an early age, gentle exercise should be taken in the open air, when its temperature is neither too high nor too low: for, while too much cold is productive, in childhood, of the most dangerous effects, too much heat is also to be considered as being, in many instances, liable to produce the greatest mischief. I am quite convinced, that, at that period of life which I am considering, the exercise is not only, in the great majority of cases, taken out of doors, when the atmosphere is in an improper state, as far as heat or cold is concerned, but that it is often taken in such a manner as to communicate too much motion to the body.

In proportion as life advances, and as the loco-motive organs increase in strength, in the same proportion exercise becomes the more requisite for the maintenance of a vigorous state of the system. While the exercise of very young children must

be, to a certain extent, of the passive kind, the same is not the case during a more advanced stage of childhood, and also during manhood. It will, in fact, be found that in the last-mentioned stages of life, active motion is by far the best calculated to maintain the tone of the different parts of the body. There are certainly particular circumstances which may render active exercise highly improper, even when taken to the most moderate extent, and when of the most gentle kind; but, as a general rule, there is no motion of the body which will be found so conducive to its healthy state, as that which results from its own muscular movements.*

The active exercise which would seem to me to be by far the most profitable for the purpose of imparting a general degree of tone to the human body, is that of walking; and the passive is that of sailing. In considering the great advantages arising from the motion of the body in either of these ways, it should not be forgotten, that a very large share of the tonic effects is owing to the purity of the air which an individual generally breathes while taking exercise, either of the active or passive kind. With regard to sailing, there cannot be a doubt, that the passive motion of the body which it occasions, contributes, in a very powerful degree, to prevent or remove that debility which is so favourable to the development of pulmonary tubercles; but while this is the case, there cannot be a question as to the great value of the sea air, as well as that of the motion. I have repeatedly known even a very short sea voyage produce the greatest change in the vigour of the system; and this has always appeared to me, neither to be owing to the motion of the body, nor the air singly, but rather to their united effects.

Although it is quite impossible to explain the operation of sea air in the prevention of the formation of pulmonary tubercles, and various forms of scrofula; still it unquestionably has the

* See *Ratier, Essai sur l'Education des Enfants.*

effect to a very considerable extent. It would therefore appear, that, by combining gentle motion of the body with the respiration of the pure air which sailing affords, there will be, at least as far as air and exercise are concerned, a most beneficial effect produced in all cases where there is a tendency to Consumption, whether that tendency be natural or acquired. I have never known a case of scrofulous debility of the system which was not, to a certain degree, removed by sailing, provided the temperature of the air, and other circumstances, were of such a nature as to be suitable for that habit of body. I am inclined to believe, that the good effects which result from sailing are best secured by short voyages; for if they should be of several weeks' duration, the food would be, during a very considerable proportion of the time, quite unsuitable to the maintenance of the health of a person of a scrofulous temperament. No matter what advantages air and exercise may afford, these will be to a considerable degree counteracted, should the food not be of that nutritious nature which is absolutely required in such a weak state of the system as we find to be always present in those who have a strong predisposition to Consumption. I am, therefore, decidedly of opinion, that short sea-voyages will be found by far the most profitable for the prevention of tuberculous disease of the lungs. I do not think that any idea could possibly be more ridiculous than that the preventive effects of sea-voyages, with regard to the disease in question, are owing to the saline particles inspired giving rise to fuller and deeper inspirations, and thus increasing the capacity of the chest. Sailing, unquestionably, gives rise to much fuller inspirations than many other kinds of exercise; but this is not, by any means, the result of any saline impregnation of the air, but, on the contrary, its great purity.

With reference to the effects of exercise of the body in preventing Pulmonary Consumption, the circumstance that many mechanics who are in motion for ten or twelve hours daily, and without experiencing any fatigue, are, of all others, the most

liable to fall victims to that disease, is, I conceive, sufficient to show, that it is more its nature than its quantity that the physician is to take into consideration. It is certainly an exceedingly difficult thing to proportion the quantity of exercise to the different physical conditions of the body; for it does not signify at what period of life it is taken, or whether of an active or passive kind, if it be disproportioned to the powers of the system, it must prove highly injurious. In considering exercise as a preventive means against the occurrence of Consumption, it is to be regarded as such only when taken to that degree which will neither over-excite nor debilitate, and also when it is combined with pure air, suitable clothing, and various other things which are known to co-operate with it in giving strength.

In addition to the general exercise of the body, as a means of preventing, to a certain extent, the occurrence of pulmonary tubercles, it has been deemed necessary, but more particularly of late years, to exercise specially the respiratory muscles, so that the capacity of the chest may become more ample. It is undoubtedly proper to promote, in every possible way, the capacity of the cavity of the chest, and the strength of the respiratory muscles; but, in accomplishing these very important ends, the greatest care must be taken, lest, while on the one hand much good is produced, there may be on the other a great degree of injury. I do not believe, that any one thing is more neglected than that of the exercise of the respiratory muscles; but, at the same time, I am well satisfied, that for some years past, nothing has been more completely abused. It is, in fact, with the respiratory muscles as it is with the rest of the system—whatever mode of exercising them is adopted must be in proportion to their strength, or else it will not be at all profitable. I am, therefore, quite convinced, that by allowing a person who has a very small chest, and who exhibits all the other marks of a tendency to Consumption, to make forced inspirations,—the disease, so far from being prevented, will, in many instances, be brought more rapidly into action. I have seen, in many cases, the greatest improve-

ment effected in the capacity of the chest, by the proper exercise of the respiratory muscles, while the body was continuing to increase in size; but after it had arrived at its full maturity, I have only in a very small proportion of cases observed any very sensible change in that respect, no matter how judicious such exercise seemed to be, or how long it was continued. On these accounts, I am inclined to think, that the exercise of the respiratory muscles must be commenced early, in order to be profitable for the purpose of giving a good form to the chest, and thus assist in preventing the production of pulmonary tubercles as life advances. If this be not the case, and if the time has arrived when these morbid formations are about to take place, it will be found, that deep inspirations made for the purpose of enlarging the capacity of the chest will have a powerful effect in bringing them sooner into action.

On perusing a work on Consumption, lately published, one would be led to believe, that inhalation, if carried so far as to promote the size of the cavity of the chest, would be an almost certain means of preventing the occurrence of tubercular formations. I am quite satisfied, notwithstanding the preventive effects which have been attributed to inhalation, that it is not at all worthy of the confidence of the physician. At whatever age it is deemed necessary to increase artificially the cavity of the chest, it must be done in the most gentle manner; as all deep inspirations, in whatever way produced, are not only unprofitable, but are also dangerous. I do not conceive, that any thing is more advantageous for the purpose of fulfilling the object in question, than that of moderate exercise in the erect position; and the exercise which I would more particularly recommend is that of walking. If this be not useful in rendering the inspirations deeper, and thus fulfilling the end in view, I do not think it is at all so likely to be effected with safety in any other way. This is more particularly the case when childhood has passed by, and when there is a very strong local tendency to the occurrence of the tubercular formations. In almost every instance where

the chest is of unusually small dimensions, there is, at the same time, in most cases considerable elevation of the shoulders, and corresponding inclination of the head towards the chest. It is, therefore, necessary to keep the head and shoulders as much as possible erect, while taking the exercise in question, or else it will not fulfil the object in view. I think, all violent gymnastic exercises, such as are sometimes practised at the present time, with the intention of enlarging the chest when its dimensions are so small as to be likely to lead to the formation of pulmonary tubercles, are highly improper. In scrofulous children, there is generally a much greater degree of flexibility of the osseous system, than what is to be met with in children of the same age, who are not of such a temperament; and hence, under such circumstances, the great danger of distortion or imperfect development of some of the most important parts of the body. There is generally a very great error committed during the education of children, by not allowing them more exercise than they usually enjoy out of doors; and, at the same time, by keeping them, for quite too great a portion of each day, in a bent position, which is, at such an early period of life, unfavourable to the development of the chest. It is requisite, in every case, for the preservation of the health of children, that they should be allowed to take a great deal of active exercise in the open air; but when there is a hereditary predisposition to scrofula, such exercise becomes still more necessary. If a child, as is very frequently the case during the time it is acquiring its education, be kept for five or six hours daily in an unnatural position, or in such a one as would likely lead to the diminution of the capacity of the chest which I am considering, a few hours' active exercise each day might tend to counteract the mischievous effects resulting from the confinement, as well as the bent position of the body; but unfortunately the exercise which is allowed is, in every respect, totally inadequate to fulfil such an object. I think children, who are not at all possessed of scrofulous temperaments, should be kept in the open air three or four hours at least daily, when the state

of the weather will admit of it; and, at the same time that they are enjoying the invigorating effects of the open air, they should indulge in such exercises as will neither excite nor debilitate the system; and the exercise which would appear to me, of all others, the most desirable, is that of walking. There are certainly many cases in which the scrofulous temperament is completely developed, where it would be quite impossible, by any precautions which could possibly be taken, to prevent a contracted state of the chest; but still, by proper attention, a great deal might be done to obviate its occurrence in a very considerable proportion of cases.

From the circumstance that a contracted state of the chest is only one predisposing cause of Pulmonary Consumption, and that there are many others, some of which reside in the lungs themselves, it is clear that the fullest expansion of the thoracic parietes which could possibly be obtained would not be sufficient, in many instances, to prevent the occurrence of the disease which I am considering. I have repeatedly witnessed cases of pulmonary tubercles occurring in individuals whose chests were of unusually large dimensions; and it would, therefore, appear to me altogether perfectly absurd to talk of any means adopted for the purpose of promoting its expansion, as being sufficient, in almost every instance, for the prevention of these morbid formations.

Amongst the most valuable preventive means against the occurrence of the disease of which I am treating, I think that of a residence in a country whose climate is dry and moderately warm, and which is not subject to sudden changes of temperature, may be very properly included. It does not signify what other preventive means are carried into effect, if this be neglected which would appear to me the most profitable by far of all others. It should be remembered, that a cold changeable climate has, in various ways, an injurious effect on those who are predisposed to Pulmonary Consumption. For instance, it not only weakens the system, and thus increases the scrofulous tempera-

ment, but it is liable to excite pulmonary irritation or inflammation, by means of which the tubercular secretion is established, or else accelerated after it has taken place. One most important thing in all cases where there is a constitutional predisposition to the disease in question, is that of the prevention of the occurrence of colds, or any other species of pulmonary irritation. If a person of a consumptive habit of body be frequently attacked with inflammatory affections of the lungs, there is no possibility of keeping off the disease, no matter what remedies are employed, or how judicious they may be for the purpose of fulfilling that end. Tubercular Consumption does not appear to prevail much in any country whose temperature is uniform, and, at the same time, pretty warm and dry. In fact, a temperate climate, provided it be dry, will, in every instance, be the best for those who have a tendency to that disease.

It is a most unfortunate circumstance, that those who are predisposed to Consumption are not removed, in nine cases out of ten, to a suitable climate at a sufficiently early age, in order that such removal could prove at all profitable in any considerable proportion of cases. If the age of puberty should be allowed to arrive, or a still somewhat more mature age, it will be found, in many instances, that both the general and local tendency to the disease have become so strong, that it will take place, in a great proportion of patients, in spite of all that can be done for its prevention. There are, however, some instances where it will be prevented from occurring, notwithstanding that the person predisposed to it is considerably beyond the age of maturity, before a removal to a warm climate has been contemplated. I am therefore of opinion, that although the change in question is infinitely more likely to be profitable when it is carried into effect in childhood, than in manhood; yet, no matter what the age may be, if at all practicable, it should not be neglected; for, as long as the tubercular deposits have not actually taken place, there is still some chance of removing the predisposition to their formation.

A very great deal might be done, even in the most severe climate, by proper attention to clothing, to prevent those of the temperament of which I am treating from suffering any considerable degree of injury, as far as external impressions are concerned; but unless a patient, under such circumstances, be kept more within doors than would be compatible with the maintenance of the tone of the system, it would be quite impossible to prevent the respiratory organs from suffering, in consequence of the air which is inspired being at very different degrees of temperature. For the purpose of securing the lungs, and some of their more important appendages, from the injurious effects resulting from breathing in air whose temperature is very low, it is in many instances possible to do a great deal, by keeping a person, during the prevalence of cold, changeable weather, in an artificial climate. This can, at least, be done with the rich; but with the poor, it is very seldom practicable. When deemed necessary to keep within doors a person who is threatened with Consumption, there is generally the greatest error committed, with reference to the temperature of the apartment in which he is kept, both during the day and night. In order to be profitable, the heat should never be higher, than sixty-four or sixty-six degrees of Fahrenheit's thermometer; whereas it is, in many instances, kept as high as seventy or eighty.

With regard to travelling for the purpose of preventing the occurrence of Pulmonary Consumption, I am fully persuaded, that in a very large proportion of cases, it is any thing but profitable. I think, therefore, if it be deemed necessary to remove a person threatened with that disease to a more favourable climate, it should be done; but when he has once reached his destination, he should remain stationary in whatever place he finds most suitable to his comforts. While it is necessary for those who are predisposed to the disease in question to live in a temperate atmosphere, and, at the same time, to take as much exercise out of doors as will promote the vigour of the body; it is also requisite to avoid every thing that will have the

least chance of either producing a sudden over-excitement, or a sudden depression of the system. Now, with reference to persons of consumptive habits of body, it will be found, they are, of all others, the worst calculated to bear the fatigue and excitement which are almost always consequent upon travelling by land, but more particularly when the stages are very long. I have seldom known any one of the temperament in question, who was not easily thrown into a state of considerable temporary excitement by a very short journey by land; and when an individual so predisposed has his system excited, day after day, in such a manner for several weeks in succession, so far from adding to the general strength of the body, it will be found, of all other things, that which is the most liable to reduce its tone. From travelling by land, there is not only a great danger of debilitating the system, but there is also, even in the most favourable climates, a great risk of contracting cold from the very frequent changes of temperature to which every one under such circumstances must be necessarily exposed.

Although I am quite averse to long journeys by land or sea, when the object is to give to the system that tone which is necessary for the prevention of scrofula in all its various forms, still I believe, from short excursions the most beneficial effects may result. The fact is, when the weather is fine, a person threatened with Consumption should be a great deal out of doors; but while this is the case, he should not be permitted to travel far from home at once. It should be remembered, that for the prevention of any constitutional disease, such as that in question, while we endeavour to do good in one way, we should guard against doing mischief in another. Now, we will find, that while travelling might possibly contribute to the tone of the body in one respect, it might have a most debilitating effect in another. On the whole, I am of opinion, with reference to travelling, that, by a due comparison of its effects, they will be found not to be by any means so advantageous as is very generally supposed.

In cases where there is a strong tendency to tuberculous dis-

ease of the lungs, it is necessary, from an early age, to guard against the employment of much mercury in any form. I do not know any one thing which has been altogether productive of more injurious effects than that of the repeated use of calomel purgatives, when there is such a weak state of the system as is likely to lead to the disease of which I am treating; and this is the case, no matter whether the person be very young, or be somewhat advanced in life. I am quite satisfied, that a great many of the cases of Consumption which are to be met with in these countries would, in all likelihood, never have occurred, had the debilitating effects of this medicine been sufficiently guarded against from an early period of life. While mercury in every form would seem to be prejudicial to the human frame, if given in large or frequently-repeated doses, still this would appear to be more particularly the case during infancy and childhood. If, during these periods of life, there be any one thing which is calculated to prostrate the powers of the system, and thus give rise to the formation of scrofulous affections in proportion as life advances, I would say that it is the mineral which I am now considering. I am inclined to think, that there is not that caution exercised in the use of the different preparations of mercury, which would be necessary in every case; but this is more particularly so in such a weak state of the body as is peculiar to the consumptive constitution. I have been in the habit, for several years past, of giving very little calomel, or any other mercurial preparation at any age; and I am inclined to think, that, if such were generally the case, we would see a smaller number of patients affected with tuberculous disease of the lungs, and other forms of scrofula. There are certainly many diseases in which the occasional use of moderate doses of this medicine will not be at all injurious, but, on the contrary, highly useful. It is, however, with mercury as with some other remedies—the immediate effects are considered, while the more remote are scarcely, if at all, regarded. I have repeatedly known children, after being subjected to the debilitating effects of calomel

purgatives for some time, manifest all the symptoms of a scrofulous tendency, although before their use they never had exhibited any sign of such a habit of body; and again I have known cases where there was every reason to believe that they were likely to suffer from scrofula in some form or other, but where the disease never manifested itself until after the tone of the body had suffered a reduction by the medicine in question. I am therefore decidedly of opinion, that, when a consumptive or scrofulous tendency exists, it is a remedy highly dangerous at every period of life, but more particularly during childhood. There are many diseases which were supposed, not long since, to be curable only by the employment of mercury, which are, at the present time, treated entirely without its use; and I have no doubt that this will become more and more the case every year.

Sulphureous mineral waters are of the greatest value to persons of scrofulous temperaments; and where attention is paid to other things which it is necessary to observe in such cases, as food, clothing, air, exercise, &c. I think that there would be little doubt of their contributing very much towards a salutary change in the physical condition of the body. It would therefore appear to me, that by the free use of such waters many fatal cases of tuberculous disease of the lungs, and other forms of scrofula, might be averted. I think, that, if there be any medicine more entitled than another to the appellation of an *alterative* in cases of scrofula, it is that which I am now considering. It is a great pity that these sulphureous waters are so very nauseous in their taste. If this were not the case, I think they would have been, in the treatment of scrofulous diseases, more extensively employed than they are; for I do not care at what age they are used, they will be found productive of the most beneficial effects. I am convinced that they are more useful than iodine, and some other remedies which are in much greater repute. I have found, in several cases where there was every reason to dread the immediate occurrence of tuberculous disease of the

lungs, the free use of sulphureous waters remove every symptom in the course of a very few weeks or months. Whether the mineral waters in question be employed with the view of preventing the immediate or ultimate occurrence of tuberculous disease of the lungs, or any other form of scrofula, they will, in a large proportion of cases, prove more efficacious if their use be alternated or combined with mineral waters of the chalybeate kind. It would not be easy to conceive a more profitable union, for the prevention of Pulmonary Consumption, no matter what the age may be, than that of iron and sulphur in such a state of solution as they are in the mineral waters.

From what has been said relative to the prevention of tuberculous disease of the lungs, it must appear, that this cannot be accomplished where there is a strong predisposition to it by any single remedial measure, but, on the contrary, by a great number of means, all tending to the production of the same effect. It is therefore quite idle to talk of any one remedial measure being of itself sufficient, no matter whether it relate to air, exercise, food, drink, clothing, or any thing else that may be calculated to preserve or promote the tone of the system on the one hand, and prevent or remove vascular congestion of the pulmonary organs on the other.

CHAP. III.

ON THE CURE OF PULMONARY CONSUMPTION.

On the different Remedies which may be most advantageously employed in the Treatment of Pulmonary Consumption during its Early Stage.

I do believe there is no disease from which the human body is liable to suffer, that has been treated in so many different ways, as Pulmonary Consumption; and hence has arisen, amongst medical men, the greatest diversity of opinion with regard to what remedies are most suitable for the purpose of curing it, or diminishing its severity. It would be only a waste of time, in considering the treatment of this or any other malady, to refer to the entire catalogue of medicines which were employed in past times, or which are used at the present time, with a curative intention; and therefore, in the observations which I am about to make, I will confine myself to the consideration of such remedies as my experience will enable me to speak definitely relative to their virtues. I think nothing has tended more to throw difficulties in the way of the physician who wishes to acquire a knowledge of the best mode of treating different diseases, than too great a variety of remedies being recommended for the purpose of fulfilling the same end.

In considering the treatment of Pulmonary Consumption, it is necessary, for the sake of clearness, to divide the disease into different stages. For instance, while the tubercular formations remain in the lungs in a crude state, the general and local remedies which are employed must be different, in a very considerable degree, from those which are had recourse to after the process of

softening has taken place, and also after hectic fever has thoroughly manifested itself. There are certainly some symptoms which are common to every stage of the disease, and likewise some remedies which are equally profitable at all times; but still the grand objects to be attained, and the remedies which are best calculated to fulfil these objects, are, upon the whole, widely different before and after the process of softening has occurred in the tubercular growths. This is so much the case, that the remedies which would be most effectual for curing it at one stage would most likely accelerate its fatal termination at another.

Some of those who have written on the subject of Pulmonary Consumption, even within the last few years, have held out the most gloomy prospects relative to its susceptibility of being cured, no matter at what stage of the disease remedies be employed with the view of fulfilling that intention. I have, however, every reason to think, that it is a malady which is much more capable of being cured by the use of suitable remedies, provided they be employed at a sufficiently early stage, than one would be thus led to suppose.

The first thing which naturally suggests itself to the physician anxious to cure Pulmonary Consumption while it is still in its primary stage, is the adoption of such remedies as will promote the absorption of the tubercular formations, and will, at the same time, remove that state of the system on which such formations depend. Now though this is practicable in a considerable number of cases, yet it is very seldom attempted, at least in such a manner as to ensure any certain degree of success. In endeavouring to promote the absorption of tubercular glands about the neck, or in any other situation, the most suitable remedies which can be employed will prove successful only in a limited number of cases; and no more can possibly be expected when the lungs are the seat of such morbid deposits. The very general opinion which is held at the present time, with regard to the inorganic nature of tubercular growths in whatever part of the body they occur, has, no doubt, led many to believe, that all the powers of

art can do little for their removal. Now, I am decidedly of opinion, that, by the operation of suitable remedies, the absorption of tubercles may be effected in a considerable proportion of cases, while they are in their primary stage, and while they are thus possessed of a certain degree of vitality. It would therefore appear, that the chance of curing a case of incipient Pulmonary Consumption will depend very much upon the time when the requisite remedies are employed.

Iodine.—In consequence of the very decided effects of this remedy when employed for the purpose of exciting the absorption of tuberculous enlargements of the absorbent glands, I have been induced to give it an extensive trial, with the view of fulfilling the same object in tuberculous disease of the lungs; and I have found it decidedly more sure in its curative effects, than any other remedy which I have employed with the same intention. Its success, however, like that of every other medicine, will depend on the mode in which it is employed, and also on the proper adaptation of the dose to the powers of the constitution, and the extent of the disease.

The external application of iodine to the chest is a mode of employing it, at an early stage of Consumption, which I consider at once safe and efficacious. When an ointment, prepared by mixing together two parts of the hydriodate of potash, one part of iodine, and ten or twelve parts of simple ointment, is applied to the surface of the chest, especially over that part corresponding to that which is diseased of one or both lungs, in such quantities as to give rise to a considerable degree of cutaneous inflammation, it will mostly be found to produce a great improvement in the state of the affected portion or portions of the lung or lungs, provided its use be continued for a sufficient length of time. I have repeatedly found, after the continued application of iodine ointment to the chest for some months, that all the general and local symptoms, and all the physical signs of the presence of tubercular formations in the lungs, were completely removed; and, instead of there being any indication of the presence of internal

disease, such as I am considering, there was every symptom which could be said to indicate a perfectly healthy state of every portion of the pulmonary organs. It is very seldom that iodine is used for a sufficient length of time, in order that it could prove at all profitable for the removal of tubercular formations, when they are present in the lungs. The application of a few ounces of an ointment of such strength as I have just mentioned, would not be of the least avail for the cure of the mildest case of Consumption; and I am therefore of opinion, that it is a medicine which has very seldom been carried sufficiently far, to prove in many instances of much avail. I have, in some cases, employed altogether several pounds of iodine ointment before there was any considerable improvement produced; and again, in other cases, there was a perceptible improvement before many ounces had been applied to the chest. The quantity used at once should never exceed the size of a hazel nut, and it should be rubbed over the skin in such a manner with the tips of the fingers, that a considerable quantity of it may be absorbed during each application, and, at the same time, that a considerable degree of irritation of the skin may be produced.

I think, independently of the constitutional effects of iodine, when applied to the surface of the chest in the manner in question, it is productive of the greatest benefit, owing to the irritation of the skin which it occasions. It thus acts in two ways: in the one, through the medium of the circulation giving rise to its alterative effects; and in the other, through that of the skin diminishing the fulness of the pulmonary blood vessels. While it is necessary to employ iodine in the mode in question, with the view of changing the qualities of the fluids, and thus giving rise to a change in the physical condition of the various solid materials of which the body is composed; it should not be forgotten, that, if, at the same time these objects are accomplished, the blood is diverted from the interior towards the exterior of the chest, the tubercular formations which are already in existence in the lungs will be more rapidly absorbed, and any further depositions of

tubercular matter will be prevented from taking place. It would therefore appear from what has been said, that the great advantage which results from the use of iodine in the manner which I am now considering, is owing to the combination of its alterative and counter-irritating effects.

One great difficulty which has been very generally considered in the way, with respect to the use of this medicine in the treatment of Pulmonary Consumption at an incipient stage of the disease, or at any other stage, is its great liability to weaken, rather than strengthen the system. When applied to the surface of the chest in the manner which I have just mentioned, it will not, in any case, be found to weaken the body; but, on the contrary, impart to it such a degree of tone as will prevent the occurrence of any fresh depositions of tubercular matter, while it will, at the same time, assist in the removal of that which has been already formed. In the use of any remedy that acts through the medium of the circulating system, in the cure of a local disease, it is a most desirable thing to get it introduced into that system, without its producing any disorder of the organs of assimilation. It is frequently the case, that a medicine will produce the greatest derangement of the stomach and bowels, that would be most profitable if it were not on account of the disordered state of these parts, to which it gives rise. It should never be forgotten, that whatever weakens the digestive organs, no matter what it may be, will not only prove unprofitable in the treatment of the disease in question, but will also be productive of the most decidedly injurious effects. I am inclined to believe, that one great reason why iodine has not been more employed in the treatment of incipient cases of Pulmonary Consumption, is owing to the circumstance of its not having been tried more frequently, in the way I have been considering, to the external surface of the chest. When it is taken internally for the cure of this disease, it should be combined with some light bitter tonic, and also with some grateful aromatic. I may say, that I have never found it to disorder the stomach and bowels, when given

in such a state of combination; but when administered in the smallest doses, without the addition of any thing, except a proper proportion of water as a vehicle, I have very rarely indeed found it not to disagree with the stomach and bowels so much that it had to be discontinued long before it could possibly have done any good.

No matter whether the medicine in question be employed externally or internally for the cure of Pulmonary Consumption, during that stage of the disease of which I have been treating; it is necessary, in order that it may prove advantageous, or even safe, that there should be considerable attention paid to the state of the vascular system during the continuance of its use. If, for instance, it be employed when there is much general or local fulness of the body, it will be productive, in every case, of much harm instead of good: this is more particularly the case when the greatest vascular distention exists in the lungs. I do not, in fact, know any one thing that would appear to me to be more unfavourable to a consumptive patient of full habit of body, than the use of the medicine in question. It is therefore necessary, when there is any local or general fulness of the vascular system, that this should be reduced by the local or general deduction of the blood, before it is employed in any form. If there be not the strictest attention paid to the keeping down of all excitement of the body during the employment of iodine, no matter in what manner, or to what extent it is used, the tuberculous disease of the lungs will certainly be rendered much worse instead of better. I have always found this medicine unprofitable when there was hectic fever present; and it would appear to me, that, as soon as this symptom manifests itself, it should be immediately discontinued.

Inhalation.—The inhalation of different volatalized substances has been practised for a great length of time in the treatment of Pulmonary Consumption; and much has been said, from time to time, in favour of the curative properties of such gaseous fluids, when thus introduced into the air tubes of the lungs. It is cer-

tainly a most extraordinary thing how any physician could for a moment suppose that remedies applied in this manner could possibly do any good in the cure of the primary stage of tuberculous disease of the lungs. There cannot be a question that some chronic diseases of the mucous lining of the trachea and ramifications of the bronchi are very much benefited by the inhalation of different stimulating fluids in the gaseous state; but that the same is the case with reference to tubercular formations in the lungs, I cannot admit. In a former part of this work, I stated that every thing tending to produce a congested state of the pulmonary organs is to be regarded as favourable to the production of tubercles. Now, when these morbid growths have once taken place, it must be quite evident, that any thing which tends to produce irritation of the mucous membranes in question must be productive of an injurious, instead of a beneficial effect. After tubercles have taken place to any extent whatever, it should be the anxious desire of the physician to avoid every thing that could possibly have an exciting effect; and I do not know any one thing that would be more likely to excite the pulmonary organs, and thus increase their vascularity, than making forced inspirations, even supposing the gaseous fluid introduced into the air tubes of the lungs to be atmospheric air, in the most perfect state of purity.

The vapour arising from hot water, containing a certain proportion of iodine, has been inhaled more extensively within the last few years, with the view of curing Pulmonary Consumption, than almost all other gaseous fluids put together. I have tried it in a great many cases while the disease was in an early stage, and I do not believe it to be a remedy which is either profitable or safe. I can safely say, that I never found it, in a single instance, produce the least improvement in the state of the lungs, as far as the tubercular growths were concerned; but, on the contrary, I have found it, though employed only to the most moderate extent, give rise, in many instances, to the worst effects. I have, for instance, known it in several cases produce, in the course of a very

few weeks, the greatest increase, both with regard to their number and magnitude; and again I have known it, in other cases, establish the suppurative process in tubercles which never had exhibited any signs of such a change previously to its employment. In consequence of the improvement which this remedy produces with regard to the catarrhal symptoms, it is supposed to be doing good, while it is producing the greatest mischief, with reference to the disease for the cure of which it is used. It is one thing to relieve cough, and diminish expectoration, and another to remove the disease on which they depend. I am therefore quite convinced, that although the inhalation of the vapour arising from a solution of iodine in warm water may give rise, in many instances, to a temporary melioration of the catarrhal symptoms, which are generally so very troublesome, from an early stage of the disease of which I am treating; yet, while this is the case, the real disease will, when every thing is to all appearance quite promising, be making the most rapid progress.

On the whole, I am of opinion, relative to the inhalation of iodine as a curative means at an early stage of Consumption, that it cannot, in any single case, be of use, as far as promoting the absorption of the tubercular formations is concerned; and that it may, in many instances, establish the process of softening in such formations, long before it would have taken place, had they not been over-excited by its protracted use. But, while the effects of this remedy would seem to me most dangerous in one way, they would appear to be rather profitable in another. Still the good effects which are produced by the relief which it affords to the mucous lining of the air tubes of the lungs, when it is diseased, will not in any way be equal to compensate for the irritation which it communicates to the tubercular formations. It is only in cases where there is an inactive or relaxed condition of the mucous membrane in question, that iodine, in the gaseous state, will be at all profitable; so that even for the relief of the catarrhal symptoms which are so troublesome in almost every stage of pulmonary tubercles, the vapour of iodine will some-

times be productive of very considerable mischief. I have known, when the inhalation of iodine was practised by some patients at an early stage of Pulmonary Consumption, that the mucous lining of the air tubes of the lungs was excited so much, that acute inflammation was the result; and I have also known this inflammatory action, in many instances, communicated to other parts of the pulmonary organs. From my experience relative to the inhalation of the gaseous fluid in question during the early stage of Consumption, I would say that it is not at all profitable in a curative point of view, and that the relief of any bronchial affection which it may afford can be obtained by many other remedies of a safer kind.

The inhalation of chlorine is, like that of iodine, a curative means which I do not think suitable in the treatment of the early stage of tuberculous disease of the lungs. I have tried the effects of the inhalation of the former of these gaseous fluids in a considerable number of patients; and I am sorry to say, that I consider it, like the latter, neither profitable nor safe. It would, in fact, appear to me, that it is a still more dangerous remedy than that of iodine, on account of its being decidedly more stimulating; and, consequently, more liable to increase the growth of the tubercular formations on the one hand, or produce inflammation and suppuration on the other. When its use is carried to a certain extent, it will certainly relieve many troublesome symptoms proceeding from a diseased state of the mucous lining of the trachea and ramifications of the bronchi; and on this account alone, I have no doubt it has, in several instances, appeared to be productive of benefit at an early stage of tuberculous disease of the lungs. It could not be at all expected, that a remedy so irritating as chlorine could be profitable in any other way than that which I have just mentioned, relative to the mucous lining of the air tubes of the lungs. I have very seldom found that this gaseous fluid could be inhaled, in any case, for a length of time, even in the most limited quantity, without the production of pain of chest, and an accompanying inability to make any thing

like a full inspiration. Now, this may be relieved by the application of a number of leeches over the painful part, or by detracting a quantity of blood from the arm; and the patient may be so much relieved by these measures, that he can go on as before: but would any man possessed of common sense say, that the alternate employment of these exciting and debilitating remedies could have any good effect with reference to the cure of the tubercular formations which are in existence, or in any way produce such general and local changes on the physical condition of the body as will prevent their further formation from taking place? On these accounts, I am decidedly of opinion, that in a case of incipient Consumption, while the aim of the physician should be the prevention of every thing that could possibly excite the system either locally or generally, both these gaseous fluids will prove, when employed even to the most moderate extent, not only unprofitable, but highly dangerous. Of the two, however, the chlorine would appear to be the most dangerous, on account of its being considerably more stimulating than the iodine, and consequently more liable to produce a state of inflammatory congestion of the air tubes of the lungs, or of these in common with some of the surrounding tissues.

The inhalation of various gaseous fluids, besides those just mentioned, have, from time to time, been highly recommended for their curative effects in cases of Pulmonary Consumption. Now, though I do not believe that almost any of them are so dangerous as iodine and chlorine, still I do not conceive that they are worthy of the least confidence, as far as the promoting of the absorption of the tubercular formations is concerned; and the mildest of them are liable to over-excite the air tubes of the lungs so much as to give rise, in many instances, to the most disastrous consequences. There cannot be a doubt, that the vapour of tar and some other gaseous fluids of a similar nature, are well calculated to relieve chronic bronchial affections; and when such affections are present during the progress of Consumption, as is generally the case, they may be productive of much temporary

benefit to the patient, with reference to the cough and some other troublesome symptoms, without, at the same time, being productive of any salutary changes with regard to the tubercular formations. There is scarcely a single instance in which the bronchial and tuberculous diseases bear any proportion to each other as to their extent; and the former may be thus quite disproportioned to the latter. I am therefore altogether of opinion, that it is only when chronic bronchial disease gives rise to the symptoms of Pulmonary Consumption, or when that disease is combined with a very limited number of the morbid growths in question, that the inhalation of the vapour of tar, or any gaseous fluid possessing similar properties, will be in any way profitable, or even safe.

In a former part of this work, I stated, that before the formation of tubercles has taken place in the lungs, any attempt made to expand the chest by deep inspirations is highly dangerous; and that this is sometimes so much the case, that strong mechanical efforts made in order to increase its capacity, will, in a considerable number of cases, bring into existence the diseased formations which they were intended to prevent. It would therefore appear to me, that independently of any other consideration, the forced expansion of the chest which is made during the process of inhalation, even supposing the gaseous fluid inhaled to be common air, is highly injurious during the incipient stage of tuberculous disease of the lungs. On all these accounts, I am of opinion, that inhalation, whether the gaseous fluids introduced into the air tubes of the lungs be of an irritating nature or not, is a mode of practice which is altogether unsuitable to that stage of Pulmonary Consumption of which I am treating.

Counter-irritants.—In the treatment of Pulmonary Consumption during its various stages, different counter-irritating applications to the chest have been, for a great length of time, highly esteemed for their curative or palliative properties. I think, however, notwithstanding all the praise which has been bestowed upon them, that there are at least some of them neither profi-

table nor safe in the treatment of that disease, no matter at what stage they are employed. It is generally with the view of diminishing the fulness of the pulmonary vessels, or promoting the absorption of recent tubercular formations, that such remedies as those in question are had recourse to in the cure of this disease. Now, from the effects of some of the counter-irritating applications which are most in use, I am fully persuaded, that, in a considerable proportion of those cases in which they are employed, the objects the physician has in view will be completely frustrated.

There cannot be a doubt, that a blister, which is employed more than any other application of a counter-irritating kind in the treatment of Pulmonary Consumption, has a most happy effect in lessening that state of irritation of the air tubes of the lungs, which is very generally present from the commencement of the tubercular formations, and even, in some instances, before any such formations have taken place. It is therefore no uncommon thing for medical men, who do not take any thing into consideration except the benefit which thus results from their employment, with regard to the relief of the bronchial disease, to apply a succession of blisters to the chest at that stage of the disease of which I am treating. The relief of bronchial disease, and the cure of those tubercular formations with which it is associated in Pulmonary Consumption, are two very different things; and the remedies which would prove most beneficial for the one would, in a large proportion of cases, prove most unprofitable for the other. I have known patients in whom the application of blisters had the effect of not only hastening the process of softening in those tubercles which were present in the lungs in a crude state, but also of producing a more rapid growth of such as had been only a short time in existence. I am led to believe that any counter-irritants which, when applied to the chest, communicate their exciting effects to the vessels of the lungs, must be highly dangerous; and those which I am now considering do certainly, in very many instances, excite the parts within the chest to a state nearly

amounting to inflammation. Besides the danger resulting from the great pulmonary irritation which the application of blisters to the chest occasions at an early stage of tuberculous disease of the lungs, they have a most debilitating operation on the system. They would appear to induce the two opposite states which seem to be so very favourable to the production of such disease,—the one the reduction of the tone of the system, and the other the excitement of the pulmonary vessels. It will not be found, that the applications which I am considering will have exactly the same general and local effects in different individuals. For instance, in those who are somewhat advanced in life, or who are not naturally possessed of much irritability of system, they will generally be found to agree much better than they do with those who are not far advanced beyond the age of puberty, or who are possessed of great nervous sensibility; and, again, they will prove less dangerous in those of emaciated than in those of robust frames.

The only rational object which blisters can be expected to fulfil while Consumption is in an incipient stage, is the relief of cough, or some other local symptom arising from the disease of the mucous lining of the trachea and ramifications of the bronchi; but any improvement in the state of the tubercular formations could not possibly be expected, on account of the violent excitement which they occasion. I am decidedly of opinion, with reference to these applications at that stage of Pulmonary Consumption of which I am treating, that they are altogether quite unsuitable, both with respect to the state of the lungs, and that of the system generally; and the only circumstance which could induce any one to employ them is the relief of the cough, or some other symptom of bronchial disease.

The use of tartar emetic as a counter-irritating application to the chest during the early stage of Consumption after repeated trials, appears to me, in many respects, quite as objectionable as that which I have just been considering. It is certainly, however, very different from it with respect to its mode of operation; but although this is the case, yet it will be found, that

the ultimate effects of both will be the same with reference to the progress of the disease.

The pustules which are produced by the application of tartar emetic to the chest, have no effect in exciting such an internal increase of the fulness of the blood vessels as will suddenly establish the change of tubercles from their primary to their secondary state; but, notwithstanding this, they may be productive of very considerable mischief in various ways. They may, for instance, produce a degree of debility and feverishness of the system which will have the most injurious effects.

For the relief of that catarrhal affection which almost invariably accompanies tubercular formations in the lungs from an early stage, the tartar emetic, like the blister, has, in most instances, a most profitable effect; but when the benefit which its application thus affords to the bronchial affection is not accompanied with corresponding advantages, as far as the tubercular growths are concerned, but, on the contrary, with much positive harm, I think it cannot be considered as a remedy which is advantageous, or which should be employed in the treatment of that disease. I do not know any counter-irritating application which is capable of producing such a great degree of debility as tartar emetic, when applied for any considerable length of time, and to any great extent. This is so much the case, that in several instances I have known it to establish complete hectic symptoms, although these did not exist at all previously to its application; and this was the case, even when the quantity used in combination with Burgundy pitch, sufficient to form a plaster of a suitable size for the chest, did not exceed three grains. There are some constitutions which are much more liable to be injured by this application than others: those persons, for instance, who disagree with the application of blisters will be mostly found in like manner to disagree with the tartar emetic. It is a strange inconsistency that a physician should endeavour to give tone to the system with one class of remedies, while he is reducing its powers with another. What is required from irritating applications to the chest at an early stage

of Consumption, is a reduction of the fulness of the blood vessels of the lungs; and this should be effected by such remedies as will neither over-excite nor debilitate too much.

As counter-irritants to the chest at the stage of Pulmonary Consumption in question, I think that issues or setons are much more efficacious, and at the same time much less dangerous, than either the tartar emetic application, or the blistering plaster. I would, however, prefer a seton to an issue. From the two last-mentioned counter-irritants there is no danger of too much excitement or too much debility being produced, unless the person in whom they are employed is of a remarkably weak or irritable constitution; and when this is the case, they will be productive of more harm than good.

Spirit of turpentine is a counter-irritant which I think is peculiarly adapted to the early stage of this disease; but which, notwithstanding its valuable curative properties, is comparatively very little employed. The great object to be attained by the application of such remedies as those in question, in the treatment of the incipient stage of tuberculous disease of the lungs, is the determination of a greater quantity of blood than usual to the surface of the chest, so that there may be a diminution produced in the fulness of the blood vessels of the lungs. It, however, unfortunately happens, that in nine cases out of ten, when such a change with reference to the state of the pulmonary circulation is attempted by any other means than that of turpentine, there is a great risk of doing more harm than good. Blisters, tartar emetic, and some other applications of a similar nature, which are very commonly employed at different stages of Pulmonary Consumption, are quite too violent in their operation to be either useful or safe. They are liable, for instance, to over-excite the part of the chest to which they are applied; to increase, rather than diminish the distention of the blood vessels of the lungs; and to produce a general state of debility, in consequence either of the discharges, or the irritation which they occasion. I am satisfied, from long and extensive experience in the use of turpentine, as a counter-

irritating application to the chest during that stage of the disease of which I am treating, that it does not communicate its exciting effects to the lungs in such a manner as to hasten the occurrence of the process of softening in those tubercles which are in a crude state; nor does it in any way tend to excite or debilitate the rest of the system. It would appear to me, that too much care cannot be taken in employing a counter-irritant for the purpose of promoting the absorption of pulmonary tubercles, to guard against any considerable excitement of any part at a distance from the seat of its application, no matter whether it be the lungs or not. Now, while it is necessary to be very cautious lest too much general or local excitement of the body should be produced, it is also requisite to take care that they be not productive of much general debility.

I am quite satisfied that any application of the kind in question that produces an extensive purulent secretion, must have a decidedly injurious effect at an early stage of Pulmonary Consumption, not only in hastening the occurrence of hectic fever, but also in prostrating the general powers of the body. I think that one great advantage of the turpentine application over all others at an early stage of this disease, is owing to its not producing any ulcerative or purulent secretion, even when employed to a great extent. If a piece of flannel well moistened with this fluid be applied to the surface of the chest every night or second night at bedtime, it will be found to produce a considerable degree of cutaneous redness without the production of any abrasion of the surface. I have in some cases applied turpentine to the chest in the manner just mentioned, for several months in succession, and I have found in some of the patients the most happy effects produced with reference to the removal of the tubercular formations. In one case, where I had every reason to believe that a very considerable proportion of both lungs was rendered impervious to the air by such formations, the regular application of this counter-irritant in the manner referred to had the effect of removing every trace of the disease. Now, although the turpen-

tine application was not the only curative means employed in this case, yet I may say that there was no other which could be supposed to render it much assistance.

One great misfortune relative to the counter-irritating application which I am now considering, is, that, owing to the pain which it occasions, it is exceedingly difficult to get individuals possessed of sufficient perseverance to derive from it the full amount of benefit which it is capable of affording. To render it less painful, I sometimes combine with it a quantity of camphor and laudanum, and, I think, with the very best effects relative to the diminution of the severe smarting which it creates. It is very difficult, nay, I might say impossible, to find any application of the counter-irritating kind, so valuable as that of turpentine, whether it be combined with the anodynes just mentioned or not. It is at once a powerful means of promoting the absorption of the tubercular deposits, and quieting bronchial irritation; and while all this is effected, there is no local or general disorder of the system produced which could in any way be injurious. I think, in fact, all other counter-irritating applications might be very properly discarded in the treatment of Pulmonary Consumption; for, if its use were only persevered in for a sufficient length of time, it would afford every advantage which could be expected from any remedy of such a nature. It could not possibly be expected, that any curative means would be profitable in every instance, or even in a large proportion of cases. If, however, it be more certain in its beneficial effects than any other remedy of the same class, and if it be also much less liable to disorder any part of the system, I think that there is quite a sufficient guarantee for giving it, in this disease, a preference to all other counter-irritating applications.

Emetics.—The employment of emetics at an early stage of Pulmonary Consumption has always appeared to me to be neither safe nor profitable. There is scarcely any thing that tends so much to compress the lungs as the operation of such remedies; and I cannot imagine how any one could possibly sup-

pose, that a medicine giving rise to compression of these organs could be favourable to the removal of tubercular formations. I could easily conceive it possible for remedies of this class to relieve, to a certain extent, some diseased conditions of the mucous lining of the trachea and ramifications of the bronchi; but I could not form an idea how the absorption of tubercular deposits would be effected by their operation. I have, in several cases, made trial of the remedies in question at an early stage of Pulmonary Consumption, but in not a single case did I ever perceive the slightest relief, as far as the disease itself was concerned. It is one thing to relieve for a time some of the symptoms of a disease, and it is an other thing to produce an improvement in the condition of the disease itself. Now, with reference to the beneficial effects of emetics at an early stage of tuberculous disease of the lungs, I am well satisfied, that they are confined to the relief of the cough, or some other troublesome symptom with which such disease is accompanied.

On account of the great tendency to the occurrence of pulmonary hemorrhage, even from the earliest stage of Consumption, there is very considerable risk of the class of remedies just referred to being productive of dangerous consequences. I have seen in several cases, from the operation of a very gentle emetic, the most profuse discharge of blood from the lungs; and I have therefore on this account, and also from the want of any really useful effects which they seemed to produce with reference to the absorption of the tubercular deposits, discontinued their employment altogether.

Dr. Giovanni de Vittis,* an Italian physician of considerable eminence, has detailed in a work which he published on Pulmonary Consumption, not many years since, a great number of cases of this disease, which he treated successfully by the use of emetics

* *Osservazioni ed Esperienze sulla Tisi Polmonare, seguite da un Metodo Particolare per la Cura di tal Malattia.*

of the tartrate of antimony. I have no reason to question the veracity of that gentleman; but, from the great number of cures which were effected at every stage of the disease, I am inclined to think, that he must have been labouring under a mistake as to the nature of the complaint for which the emetic medicine was employed; and that, instead of treating cases of Consumption, he was treating merely those of chronic bronchitis. This I am quite convinced was the case, from the circumstance of his detailing a much greater number of cures which were effected by its use in the second than in the first stage of the disease. He states, that the quantity of the tartar emetic administered for the purpose of exciting vomiting was about three grains. Now, as it was repeated night and morning in doses of the same extent, the debility of the system, which must necessarily have been occasioned by its continued employment, would, so far from being in any way profitable with respect to the cure of the disease, have the effect of accelerating its fatal termination. In such a disease as that in question, where it is necessary to preserve, in every practicable way, the strength of the system, the employment of any medicine that would be productive of much debility would, to a certainty, aggravate the tubercular formations in the lungs.

There cannot be a doubt, that the employment of a gentle emetic may, in many cases of Pulmonary Consumption, give rise to a temporary improvement of some of the most urgent symptoms. It should not be forgotten, however, that in this disease the cough may proceed more from the state of the mucous lining of the trachea and ramifications of the bronchi, than the presence of tubercles in the lungs; and that the medicine which would be best calculated to remove the one disease, would prove a means of aggravating the other. Dr. Clarke states, that the employment of the remedies referred to may be considered as most valuable for the purpose of promoting the expectoration of recent tubercular deposits; and he comes to this conclusion, in consequence of his belief in the opinions which Dr. Carswell has

advanced relative to the nature and seat of such deposits. I do not believe in the doctrines of the latter gentleman with regard to the nature or seat of pulmonary tubercles, nor can I acquiesce in the opinions expressed by the former respecting the capability of emetics promoting their discharge from the lungs by expectoration. If the employment of an emetic were sufficient to effect the expulsion of tubercular matter by expectoration as it is secreted, there would be no case of Consumption allowed to proceed to a fatal termination. This, at least would be the case in every instance where such remedies are employed at a sufficiently early stage of the disease. I do not think that Dr. Carswell, or Dr. Clarke, or any other person, will ever be able to discover the presence of tubercular matter in the expectoration, at that stage of the disease of which I am treating. I will not dispute with the former gentleman with respect to the situation where the deposition of such matter takes place in the lungs; but as to its inorganic nature during the primary stage of Pulmonary Consumption, and as to the possibility of its being during that stage expectorated by any effort of the respiratory muscles, I entirely disagree with him in opinion.

I do not believe, that any one thing could be worse calculated to be useful than that of the employment of emetics at an early stage of tuberculous disease of the lungs; and I would therefore wish it to be fully understood, that I consider them highly improper, and not at all calculated to be profitable for the cure of such disease; but, on the contrary, in the great majority of instances, in every respect very injurious.

Mercury.—From the favourable opinions which were held for a considerable length of time, and which are still held to a great extent, relative to the curative properties of mercury in the great majority of the diseases which affect the human frame, its use was extended amongst the rest to Pulmonary Consumption. Although there is in these countries a very great change at the present time, when compared with what was the case forty or fifty years ago relative to the safety and efficacy of mercury

in the cure of diseases, still there are some physicians, from the force of habit, and others from a kind of obstinacy, who persist in employing it to the same extent and in the same indiscriminate manner as at any former period. In the treatment of Pulmonary Consumption, and many other diseases, it is very easy for a medical man to fall into very dangerous mistakes relative to the curative properties of various remedies; and while they are, in many instances, doing a great deal of harm, he may suppose that they are productive of the greatest benefit. There cannot be a question, that mercury in different forms is most valuable, on account of its powers in exciting the absorption of various new morbid formations; but notwithstanding this is the case, still I do not conceive that it is at all applicable to Pulmonary Consumption; for it is a remedy which, while it stimulates the whole system as well as individual parts, and thus favours the absorption of recent morbid growths, at the same time prostrates all the powers of the body: and hence, while on the one hand it is conducive to the removal of pulmonary tubercles, on the other it is the surest means which can be employed for the purpose of bringing the system into that condition which is the most favourable to their growth.

I do not know any constitution which agrees so badly with the use of mercury as the scrofulous; and I am quite satisfied that in the treatment of diseases of the scrofulous kind, no matter where they are situated, or what form they assume, it is a medicine which is highly improper in every point of view. I have, in very many instances, known the employment of only a very few doses of calomel hasten the change of pulmonary tubercles from the primary to the secondary state. The fact is, that in cases where these morbid growths are present in the lungs in an almost latent state, all that is necessary to establish in them such changes as will lead to their destruction is merely to bring the system completely under the influence of mercury. It is a very curious fact, and it is one of much value to the practical physician, that persons of consumptive habits of body cannot take one fourth

the quantity of this medicine as those who are not so predisposed, without the occurrence of salivation, or some other debilitating constitutional operation. This susceptibility of the system to become affected with mercury is however increased, when tubercular formations are already in existence in the lungs. If salivation occurs while Consumption is in what might be called its *incipient stage*, the mercurial hectic will be almost sure to terminate in the consumptive; and thus a disease, which might otherwise have remained in an inactive state for a considerable length of time, is speedily brought, by the use of this medicine, to a fatal termination. It is a very curious circumstance, what a great difference exists with respect to the injurious effects of mercury at the same stage of the disease, in different constitutions: for instance, in those cases where the person affected with Pulmonary Consumption is only at or a little beyond the age of puberty, it has always appeared to me to be productive of a decidedly more injurious operation, than after the body has arrived at its full maturity; and again I am quite convinced, that its pernicious operation is much greater in the female sex than in the male. It would seem, that the injurious effects of this medicine on the system are nearly proportioned to its sensibility to physical impressions. It will be found, that even mercurial laxatives, given at such intervals as not to produce any sensible constitutional effects at an early stage of tuberculous disease of the lungs, will be productive of the greatest mischief. I think, therefore, that the very general practice which prevails, of giving occasionally, at an early stage of this disease, small doses of calomel with a laxative intention, is very dangerous. But this is more particularly the case when the powers of the constitution are low.

There is no class of individuals so liable to suffer from functional derangements of the organs of assimilation, as the consumptive; and from the supposed efficacy of calomel, and other mercurial preparations in the treatment of such derangements, it is easy to see, independently of every other consideration why they are so frequently employed in such habits of body, without

any intention on the part of the physician, of their doing more than merely relieving the diseased conditions referred to. I do not know any disorder of the organs in question which cannot be cured without the use of this mineral; and I am therefore led to believe, that, at least in nine cases out of ten, it might be dispensed with in the treatment of most of those diseases for which it is employed. I think, however, that in the consumptive constitution, whether there be tubercles present in the lungs or not, it is peculiarly injurious.

Blood-letting.—At an early stage of Consumption, the detraction of small quantities of blood, with intervals between each bleeding of such an extent as are suitable to the powers of the constitution at the time, has been, in many instances, productive of the most valuable curative effects. It might be supposed, from the weak state of the system with which tubercular formations in the lungs are mostly accompanied, that any remedy tending to lower its strength still farther would be productive of the most injurious effects. There is, unquestionably, a want of healthy tone in every case where Consumption occurs; but this very circumstance is the reason why the vascular system is so often, either wholly or partly, in this disease in a plethoric state. It is an exceedingly difficult thing to determine, in temporary or more permanent states of vascular congestion occurring in this disease, either with reference to the whole body or some of its organs, how far bleeding can be carried to be compatible with the maintenance of the general or local strength, and, at the same time, be sufficient to remove that fulness of the blood vessels, whether general or local, which would not fail to prove highly injurious, should it not be relieved. In the use of the lancet, like many other means employed for the purpose of curing or relieving the diseases of the human body, physicians have been, in all ages, led into the commission of the greatest practical errors, by forming certain theories, by which they have been induced either to carry it too far, or not far enough. It would appear to me, with respect to blood-letting in the treatment of

the early stage of Consumption, that there is very considerable difficulty in proportioning the quantity to be taken away to the powers of the system; for, if it be too small to relieve either the lungs or the rest of the body when in a state of vascular plethora, it will be of little avail; and again, if taken away in too large quantities for the powers of the system to bear, it will then accelerate, rather than retard the progress of the disease, or assist in its cure.

On these various accounts, it requires the greatest experience, in the use of this remedy, to derive from it those salutary effects which it is capable of affording in a considerable proportion of cases, when employed at a proper time, and to the requisite extent. I think I can safely say, that from this curative means I have seen a much greater degree of benefit produced with reference to diminishing the rapidity of the progress of tuberculous disease of the lungs, promoting the absorption, and preventing the further secretion of tubercular matter, than any other that I have tried. It is, however, like every other remedy which has been employed at that stage of Pulmonary Consumption of which I am treating—the sooner after the commencement of the disease it is had recourse to, the greater will be the degree of success which will follow its use.

There are a great many cases of Pulmonary Consumption which would not be benefited, but, on the contrary, much injured by the loss of even the smallest quantity of blood, no matter how soon after the commencement of the tubercular formations it has been taken away. Those cases, however, in which very small bleedings are unprofitable or dangerous are comparatively rare, and are mostly to be met with in persons who are somewhat advanced in life, or in those in whom the powers of the constitution have been completely prostrated by intemperance, the excessive use of mercury, or some other debilitating cause. I have never been able to take away the smallest quantity of blood from drunkards, or from persons who had suffered from the effects of mercury, without the strength being quite too much impaired for it to

be profitable, or even safe. It is, therefore, a means which cannot be had recourse to in the treatment of the early stage of tuberculous disease of the lungs, when from any cause the body is in a very debilitated state. It is in those who are of a pretty full habit of body, and who are very young, that it will be found to be productive of benefit, either in retarding the progress of the disease, or in curing it altogether.

With regard to the comparative advantages of local and general bleeding at an early stage of Pulmonary Consumption, I have been unable to discover any difference in the results. When there is considerable vigour of the system, I think it is more convenient, and in all probability more profitable, to take away the requisite quantity of blood from the arm by means of the lancet; but when there is a less degree of strength of body, leeches or cupping might answer the purpose better. I think, of the last-mentioned modes, the latter would appear to me much preferable to the former, on account of the greater determination of blood towards the surface of the chest which it occasions, and also on account of its not being attended with so much exposure of the surface of the chest to cold. I am quite convinced, that the valuable curative or palliative effects which would result from bleeding are very often completely counteracted by the exposure to cold which must necessarily accompany the application of leeches.

The great objects which the physician wishes to fulfil, in the detraction of blood during the incipient stage of Consumption, are the diminution of the supply of that fluid to the lungs, and the reduction of feverish excitement of the system. I do not believe there is any case in which there is not, during the greater part of the progress of this disease, a plethoric state of the pulmonary vessels; and this must be removed, or else the tubercular growths will not only increase in size with great rapidity, but they will also be speedily changed to the purulent state. I do not conceive, that the loss of blood is required in tuberculous disease of the lungs only when there is inflammatory

action present, as is supposed by many physicians to be the case; for it is a remedy which, while it is most profitable for the removal of inflammatory action, is at the same time a most powerful means of retarding the rapidity of the growth, or promoting the absorption of tubercular formations in whatever part of the body they occur. It would therefore appear, that one of the most certain curative or palliative means which can be employed in the treatment of the early stage of Consumption is the diminution of the fulness of the pulmonary vessels by small and frequently repeated bleedings. I have, in several instances, taken away at the rate of five or six ounces of blood every eight or ten days, for several months in succession; and, in every case where the patient was of a full habit of body, with the best effect, either in retarding the rapidity of the progress of the disease, or in promoting the absorption of the tubercular deposits. I am therefore of opinion, that in the treatment of the incipient stage of Pulmonary Consumption, it will be found a most valuable remedy.

Laxatives.—There are few remedies which are altogether productive of more benefit during the incipient stage of Pulmonary Consumption, than those of a laxative kind; but although this is the case, yet I do believe that there are few which are so little attended to by the great majority of physicians, and there are none which it is so difficult to get patients to take with any degree of regularity. Nothing is more liable, when there is a constitutional tendency to this disease, to confirm it, than a constipated state of the bowels; and when the tubercles have taken place in the lungs, there is nothing which is so very likely to accelerate the rapidity of their growth, or to hasten the occurrence of the process of softening. While that congestion of the vessels of the lungs, which is such a common accompaniment of the morbid formations in question, is relieved by detracting at very short intervals small quantities of blood, the same will be found to be the case by the use of small, but frequently-repeated doses of cooling laxatives. Blood-letting may remove any state of general or

local fulness of the system with more rapidity than laxatives of any kind; but, notwithstanding that this is the case, still I am inclined to think, that the regular employment of the latter medicines will fulfil the objects to be attained by remedies of an antiphlogistic nature, in the treatment of the primary stage of Pulmonary Consumption, with the greatest safety, and at the same time with the greatest certainty. It would therefore seem to me, that, for the purpose of diminishing that congested state of the blood vessels of the lungs, which is such an invariable accompaniment of the early stage of tuberculous disease of these organs, there is nothing more profitable than mild cooling laxatives.

It should be strictly kept in mind, that, whenever the bowels are in a constipated condition, the process of assimilation cannot go on with the same degree of regularity, as when they are acting in such a manner as to obviate the occurrence of any feculent accumulation; and hence there is not only a great degree of general weakness thus produced, but there is also that state of pulmonary congestion which is so unfavourable to the disease at the stage of which I am treating. From what has been already said, it must appear that every circumstance which tends to bring the body into a weak state, or to produce an unusual determination of blood to the lungs, must necessarily be a cause of accelerating the fatal termination of the malady. I have observed in a very large proportion of the cases of incipient tuberculous disease of the lungs, which have come under my notice, that the bowels were in a constipated condition; and I am led to believe, that such a condition of these organs is a very common attendant of Pulmonary Consumption in its primary stage. Be this the case or not, there cannot be a question that to obviate constipation the greatest advantage may result to a patient labouring under tuberculous disease in its early stage. In many instances, during the incipient state of the disease, it is a most profitable thing to employ laxatives, although the bowels are perfectly free. This is particularly the case when it is deemed necessary to diminish the

fulness of the blood vessels of the lungs, or of these in common with the rest of the system, in the same manner that it is reduced by general or local bleeding.

No matter whether laxatives be employed at an early stage of Pulmonary Consumption, or at one somewhat more advanced, it is a most difficult thing to regulate their quantity and quality in such a manner as to be suitable to the powers of the constitution, the state of the bowels at the time, and various other circumstances. A laxative in this disease, like every other curative means, may be either profitable or not, according to the quantity which is given for each dose, the frequency of its repetition, or the nature of its general or local operation on the body. I do not care what laxative medicine is employed for the purpose of promoting the absorption of pulmonary tubercles, the dose should be small, and repeated at short intervals. There is but one opinion amongst those who have paid a sufficient degree of attention to the use of laxatives,—that small and frequently-repeated doses are much better than large ones given at longer intervals, not only for the purpose of obviating constipation, and lessening vascular plethora in whatever part of the body it may be situated, but also for promoting that tone of the assimilating organs which is necessary for digestion, and consequently for the healthy condition of the rest of the system. On these various accounts, it would appear to me, that in regulating the dose of laxatives, and selecting from the great variety in use such as will in every respect be suitable for each individual case, the physician will be liable to fall into the commission of the greatest practical errors. For those who are possessed of very weakly constitutions, or who are somewhat advanced in life, the saline laxatives are not so safe as some others; and I am decidedly of opinion, that, under such circumstances, very much local and general mischief might in many instances result from their use. In a general way, I would prefer, at an early stage of Pulmonary Consumption, when the digestive organs, or these in common with the rest of the system, are in a very weak state, the compound rhubarb pill,

or a combination of calcined magnesia, rhubarb, and ginger, to any other laxatives. It would of course, in some cases, be necessary to deviate a little from these forms; but what I wish, in giving at all a form of laxative medicine, is merely to show the general characters of those which I think should be employed under such a state of the system as that to which I have just alluded.

It will be found, that the saline laxatives are most profitable for persons labouring under incipient Consumption, who are of a full habit of body, and who are not far advanced beyond the age of puberty. I have known, in many instances, a combination of Epsom salts, calcined magnesia, and ginger, productive of the most salutary effects, not only in removing constipation of the bowels, but also in diminishing an over-distended state of the blood vessels of the lungs, or of these organs in common with the rest of the system. It is sometimes the case that there is a perfectly regular state of the bowels, and still the employment of small and frequently-repeated doses of cooling laxatives may be absolutely necessary, when there is too great a degree of vascular fulness of the lungs, or of any other part of the body. I would, therefore, advise those who are called upon to treat pulmonary tubercles during their incipient stage, to endeavour to retard their growth, or promote their absorption by means of such remedies as I am now considering, no matter whether the bowels be really constipated or not. It will, however, be found that persons of scrofulous temperaments cannot take large doses of laxative medicines without the greatest prostration of the system being produced. It is, therefore, absolutely necessary, whether such remedies be administered with the intention of removing a constipated state of the bowels, or with that of lessening the fulness of the pulmonary vessels, or of those of any other part of the body, that the dose should never be so large as to endanger by its operation the tone of the system. In almost every disease, the greatest care is requisite, in order to obtain from any curative means all its profitable, and none of its injurious effects; for every

remedy is capable of being productive of the greatest mischief, if it be not employed in such doses as are compatible with the powers of the system, and also with the nature of the disease. There are some patients in whom the use of the cooling saline laxatives would not be proper at the early stage of the disease in question, even although there was considerable partial or general fulness of the blood vessels. I allude to young females labouring under amenorrhœa, as is very commonly the case during the early stage of Consumption, and long before the tubercular deposits in the lungs could possibly give rise to much reduction in the general tone of the body. In such cases, it may be necessary to give the more stimulating purgatives, either with or without those of the saline kind.

Tonics.—In the treatment of the primary stage of Pulmonary Consumption, there are no remedies which may be productive either of more harm or good, than those of a tonic nature; and they are, therefore, of all others, those which would appear to me by far the most difficult to manage, so that they may be profitable either in a palliative or curative point of view. There may be in this disease, at that stage of which I am treating, an apparent degree of strength of the system, while there is a complete want of tone; and, on this account, medicines of a tonic nature may be useful, where, judging from the appearance of a patient, such a thing could not be at all supposed. It would appear from what I have already said relative to the causes of tubercular formations in the lungs, that a debilitated condition of the system is that in which they are liable to occur; but in addition to such a condition, there is a congested state of the pulmonary organs, which favours the formation, growth, and various changes which the tubercles are liable to suffer. Now, from the circumstance of local or general debility of the system being favourable to the production of a morbid fulness of the blood vessels of the lungs, or of these organs in common with the rest of the body, it is evident that, while, in the treatment of the primary stage of pulmonary tubercles, it is necessary, by small bleedings, by the application of

counter-irritants, or by the employment of mild cooling laxatives, or any other means, to reduce either a local or a general state of plethora, it is at the same time requisite to have recourse to those remedies which are calculated to give such a degree of strength to the blood vessels, either locally or generally, as will be sufficient to obviate or remove that state of distention which is so favourable to the growth of the tubercles, and to the various destructive changes which such morbid formations are liable to undergo. If the physician could give only a certain degree of strength to the pulmonary organs, and also to the various other parts of the body, and if he could keep down all that local or general fulness of the blood vessels with which such debility is very generally associated in persons of scrofulous temperaments, he would, in all likelihood, prevent the occurrence of tubercular formations altogether; or else he would place the system in that condition which is the most favourable for their removal. On these various accounts it would appear, that, whether with the view of preventing the occurrence of tubercular growths in the lungs, or of removing such growths when they have taken place, it is necessary, either alternately or simultaneously, to employ remedies of a tonic and antiphlogistic nature.

I do not care whether laxatives be had recourse to with the intention of removing a constipated state of the bowels, or reducing any local or general fulness of the vascular system; they will fulfil the object in view much better if they are combined with some grateful bitter tonic. Now, this will be still more particularly the case when there is a scrofulous condition of the body, whether any individual organ be actually in a diseased state or not at the time. I would therefore, at an early stage of Pulmonary Consumption, strongly recommend the necessity of combining every laxative which is employed, no matter what intentions it is to fulfil, with a suitable dose of some light bitter. It will be found, that, in almost every instance, there is, at an early stage of this disease, a remarkably weak state of the stomach and bowels; and notwithstanding the necessity of the frequent employment of

laxative medicines for either removing constipation, or reducing some local state of vascular congestion, still such debility will be rendered, in many instances, much greater by the medicines which are taken with the view of fulfilling these very important intentions. This is more particularly the case with the saline laxatives; and although they are absolutely necessary in a great many cases of incipient Consumption, yet in several patients their valuable curative or palliative effects are, to a certain extent, counteracted by the debility of the intestines to which they give rise. By the combination of light bitters with laxatives, the tone of the bowels will be preserved or promoted; and while this is the case, there will not be any excitement communicated to the rest of the system which would be incompatible with their use.

I do not consider the use of Peruvian bark, and some other strong bitter tonics, either profitable or safe at an early stage of tuberculous disease of the lungs, unless they are combined with some cooling medicine of a laxative kind. This, however, is more particularly the case when there is any considerable local or general fulness of the vascular system present at the time. I think, however, when there is a proper degree of attention paid to the employment of laxatives in combination with Peruvian bark, it is a tonic from which great benefit may be derived at that stage of Pulmonary Consumption of which I am treating. It sometimes happens, that the use of laxatives in combination with the bitter tonics would be improper, either on account of the state of the bowels at the time, or of that of the system generally. Now, when this is the case, by combining the bitters with medicines of a gently diaphoretic or diuretic nature, their over-exciting effects will be prevented, while their tonic will be preserved in such a manner as to be profitable in sustaining or in increasing the vigour of the body. If, for instance, ten or twelve grains of Peruvian bark be taken in combination with five or six grains of the nitrate of potash, or with one or two grains of hippo powder, it will be found, even in those cases where there is either local or general fulness of the blood vessels, that it will be prevented by

such a combination as that in question from becoming in any way prejudicial, while all its tonic effects will be completely secured. As a tonic, the Peruvian bark, when finely powdered, is certainly most valuable in the treatment of many diseases; and notwithstanding that it has fallen into comparative disuse within the last fifteen years, still I am inclined to regard it as a most valuable remedy for the treatment of diseases arising from or connected with much constitutional debility, when it is only employed to the necessary extent and with the requisite precautions.

Iron, in different forms, has been long employed in the treatment of various diseases attended with much general debility of the system. I have tried this medicine, in a variety of forms, in the early stage of tuberculous disease of the lungs; but I am sorry to say, that in the great majority of cases, I found it a remedy which was not well calculated to be in any respect profitable, but, on the contrary, in many instances highly injurious. Where there is any local or general state of over-distention of the vascular system, it is a medicine that will, even in the most moderate doses, tend to increase it, no matter whether it be combined or not with laxatives, or other antiphlogistic medicines. Notwithstanding, therefore, the powerfully tonic effects of the different preparations of iron, still it will be found to be a remedy which will very seldom be safe or profitable at an early stage of Pulmonary Consumption. There are, however, some exceptions to this rule, with regard to those whose systems are in a very debilitated condition, and in whom there is no local or general state of vascular plethora. When iron is employed in this disease at all, it will be much more profitable if taken in combination with the muriatic acid, than in any other form. I have, in some instances, found the muriated tincture agree when taken to a moderate extent, when no other preparation of the iron could be used without a considerable degree of feverishness being produced. This would seem to me to have been owing to its combination with the acid in question.

The mineral acids, but more particularly the sulphuric, would

appear to be, of all other tonics, those which are by far the most manageable at that stage of the disease referred to. Aromatic sulphuric acid may be given to a considerable extent, at an early stage of this disease, without the slightest risk of any inflammatory excitement of the lungs, or of any other part of the system, being produced. The fact is, that, so far from this being the case, it would appear to act as a sedative, as well as a tonic. The same would seem to be the case with most of the mineral acids, when taken in suitable doses.

Diuretics.—There are some remedies which are most valuable in the treatment of the incipient stage of Pulmonary Consumption, whose operation is particularly confined to the kidneys. When it is deemed necessary to diminish the fulness of the vascular system with reference to the lungs, or to these organs in common with the rest of the body, various medicines of a diuretic nature are productive of the greatest benefit. The fact is, I do not know any thing that tends so much to reduce that distention of the pulmonary vessels which is so favourable to the formation, growth, and softening of tubercles, as remedies which act on the kidneys in such a manner as to give rise to an increase in the quantity of the urinary secretion. I am decidedly of opinion, that—in the treatment of diseases in which it is necessary to promote the absorption of new growths, or to retard their progress—medicines whose operation is particularly confined to the urinary organs are more manageable, and, at the same time, more profitable, than many other remedies which are far more in use. It would appear to some, that a medicine of such a kind as that which I am now considering could not be productive of any good effects in palliating or curing a malady so remote from the seat of its principal operations, as that of tuberculous disease of the lungs. The same, however, might be said with reference to laxatives, and many other medicines whose operation is apparently remote from that of the seat of such morbid formations. The success attending the employment of diuretics will vary in different constitutions at the same stage of the disease. In those who

are possessed of emaciated frames, they will be, in the great majority of instances, quite too debilitating when given only to the smallest extent consistently with their producing a diuretic operation. It is in those cases where there is a considerable degree of strength of constitution, and where there is, at the same time, a state of local or general plethora of the vascular system, that they will prove beneficial. I do believe, that medicines of the diuretic class are better calculated to remove partial congestions of blood, than those of almost any other; and hence, when employed at an early stage of Pulmonary Consumption, they are often capable of producing the most salutary effects.

Digitalis is a medicine which was, for a great length of time, reputed as an almost certain cure for the disease in question; and notwithstanding that its character is not so high at the present time as it was some time since, with reference to this disease, still it is a remedy which is to be regarded as possessing the most valuable effects while tubercles are in their primary state. I am not, however, sure that it has ever been sufficient of itself to excite the absorption of tubercular formations in the lungs; but, while this is the case, I am well satisfied, that it has been, in very many instances, a very powerful auxiliary to remedies of a different kind. When, for instance, it is necessary to take away small quantities of blood, and to employ various other curative means of an antiphlogistic nature, it will be found, if taken in small and frequently repeated doses, productive of the most beneficial effects. It should never be carried so far as to give rise to a great increase in the urinary secretion, as it would thus debilitate the body too much to be in any way profitable. When it is productive of a suitable increase in the urinary discharge, it is necessary to watch it closely, lest its operation should become such as to weaken the powers of the system. There is certainly nothing that tends more to prostrate the powers of the body, than that of the violent operation of remedies of a diuretic nature. Now, as it should be the particular wish of the physician, at that stage of Pulmonary Consumption of which I am treating,

to preserve the tone of the system, at the same time he is endeavouring, by the employment of different remedies, to keep down any congestion of the blood vessels of the lungs, or any excitement of the blood vessels of these organs in common with the rest of the system,—he should guard against the use of any thing that would be likely to be productive of much general or local debility; and the medicine which I am now considering will certainly have that effect when carried too far.

When the diuretic in question is combined with bitter tonics, it will be much more valuable in the treatment of Pulmonary Consumption. If, for instance, ten or twelve drops of the tincture of digitalis be combined with a cupful of some light bitter, such as an infusion of cascarilla, colombo, or chamomile, it will be prevented from reducing the tone of the stomach and bowels, or of the system generally; and at the same time that this is the case, a much smaller quantity will be required to produce a diuretic operation. I am quite convinced, that ten or twelve drops of this medicine will have a more powerful effect when given in this state of combination, than three times the quantity taken in the ordinary way. I have never found it to produce any sickness of stomach, or any other debilitating effect, during that stage of Pulmonary Consumption referred to, when taken with bitters in the manner to which allusion has been made.

Spirit of nitre is a remedy of a diuretic nature, from which much benefit may be derived at the early stage of tuberculous disease of the lungs. It will be found not only to promote the urinary discharge, but also to give a degree of tone to the system. It would thus appear to act in two ways; the one by increasing the secretion of urine, and the other by giving a certain degree of strength to the body. If the spirit of nitre, like the digitalis, be administered in combination with some light bitter, its effects will be much more valuable. It is more particularly in those of weakly constitutions that this medicine will prove altogether most profitable. For example, to those in whom there is a good deal of either general or local plethora, it will be too stimulating

to be profitable. This will at least be the result, unless its use be accompanied with that of cooling saline laxatives; and when this is the case, it will very seldom be too exciting, no matter what the state of the system may be at the time it is employed. I scarcely know any combination so admirably calculated to equalize the circulation, and at the same time to give a salutary degree of tone to the system, as that of a mixture consisting of spirit of nitre, infusion of colombo or cascarilla, when accompanied with the use of some cooling laxative, such as equal parts of cream of tartar and calcined magnesia.

Though the squill is a medicine which is employed to a considerable extent during that stage of Consumption of which I am treating, yet it is very seldom that it is given with the view of acting on the urinary organs. It is, however, a very powerful diuretic when taken to a certain amount; and, as far as this operation is concerned, it might be a very valuable remedy in the treatment of the primary stage of Pulmonary Consumption. It is an unfortunate circumstance, relative to the squill, that while its operation would be most profitable in one way, it would be most injurious in another; and this is owing to the great debility of the stomach and bowels which it occasions. I do not believe that there is any one remedy which has a more injurious effect than that in question, on account of this operation on the assimilating organs. It may be laid down as a general rule, in the treatment of the incipient stage of Pulmonary Consumption, that no medicine which tends to weaken much the organs of digestion can be profitable. The only way that the squill can be given, so as to obtain its diuretic effects without being productive of any injurious action on the stomach and bowels, is to combine it with a proper proportion of sulphuric acid and some warm aromatic. For instance, three ounces of the syrup of squills may be combined with three drachms of aromatic sulphuric acid, and half an ounce of the tincture of ginger.

Diaphoretics.—Medicines of a diaphoretic nature are very seldom employed in the treatment of Pulmonary Consumption, with

any other intention except that of palliating some particular symptom. There are, however, many of them which may be considered, when given either alone, or with the addition of something else of a curative nature, as being most profitable in their effects. It will be very generally found, that in those who are labouring under the primary stage of tuberculous disease of the lungs, the skin is in a remarkably dry state. Now, when this is the case, there will be the greatest benefit produced by the use of medicines which give rise to an increase of the cutaneous perspiration. The dry state of the skin alluded to is mostly to be met with in persons whose constitutions are not in what might be considered a very debilitated condition. I have very seldom found it without the presence of a kind of feverish state of the system. In this disease, all irritation of the body, no matter from what cause it may proceed, is productive of the greatest mischief. There is nothing that would seem to me more likely to promote the growth of pulmonary tubercles, than that of a reduction in the quantity of the cutaneous perspiration; and nothing would appear to me more liable than such a state of the skin, to hasten the process of softening. In what may be regarded acute cases of Pulmonary Consumption, the condition of the skin which I am now considering will almost invariably be present.

I have, in some instances, found the greatest advantage from the compound decoction of sarsaparilla during the early stage of tuberculous disease of the lungs, in promoting the cutaneous secretion. There is certainly no medicine more profitable in the treatment of various diseases of a constitutional nature, than that of sarsaparilla in different forms. This, however, will be found more especially the case when there is a reduction in the cutaneous perspiration. It is very seldom that this medicine is taken to such an extent as to be profitable as a diaphoretic. I have, in many instances, found it, when used to the amount of a pint of the decoction daily, productive of the very best effects, in not only promoting the secretion in question, but also in improving the tone of the system. It is therefore a remedy, which, while it

increases the secretion of the skin on the one hand, would appear to impart a salutary degree of tone to the body on the other. It is a medicine which I have not found, in any one instance, to disagree with the stomach and bowels, no matter to what amount it was taken; and, in fact, so far from this being the case, I have known very many cases in which it was productive of the greatest improvement in the state of these parts. When the skin is very dry, I have given to several patients, in combination with the decoction of sarsaparilla, very small quantities of spirit of nitre, with the greatest advantage not only with reference to the promotion of the secretion alluded to, but also that of the kidneys.

Hippo is a medicine which is most valuable, during the incipient stage of Pulmonary Consumption, in keeping up the requisite quantity of perspiration from the surface of the body. It will, however, be found to fulfil this intention with much more certainty when taken in combination with very small quantities of nitre. In some cases, for instance, I have given half a grain of hippo, five grains of nitre, and a little ginger, with the most salutary effects. The addition of the nitre will, in every case, promote the cutaneous secretion, and will, at the same time, reduce all irritation of the system. I cannot think, that medicines which increase the cutaneous perspiration by their powerfully stimulating effects, not only on the skin, but also on the system generally, can be considered, in any respect, safe or profitable in the treatment of tuberculous disease of the lungs in its primary stage. I am therefore of opinion, that whatever advantages are to be derived from the employment of such remedies in this disease are best secured by the use of those of the most gentle kind, such as sarsaparilla or hippo.

Regimen.—In the treatment of almost every disease to which the human body is liable to suffer, there is nearly as much to be gained by the adoption of certain articles of food, as by the use of the most expensive medicines; and this holds good with no other malady to a greater extent than that of Pulmonary Consumption. In the treatment of this disease, it is impossible to

derive any curative effects from the most judicious remedies, unless the food be of such a kind as will neither accelerate the growth of the tubercular formations, nor hasten the occurrence of the process of softening. Now, the selection of such a regimen as is calculated neither to excite nor debilitate the system, seems to have been, at all times, attended with the greatest difficulty; for what would prove in this disease most salutary to one patient, would, where every external symptom was apparently the same, prove highly injurious to another. It has always appeared to me to be perfectly ridiculous to lay down any fixed rules with regard to the regimen which an individual labouring under the disease in question in its incipient stage should employ, because so much depends upon habit, as well as other circumstances, with regard to the capabilities of the digestive organs to assimilate certain alimentary substances. The physician who has had frequently under his care patients labouring under Pulmonary Consumption at that stage which I am considering, must have observed how often the food which he has recommended, with every hope of agreeing with his patient, has completely disappointed him. It would therefore seem to me, that, in prescribing a regimen for patients labouring under this disease, it is impossible to say absolutely what kind will agree best, as almost every constitution has something peculiar in its powers which can be ascertained only by experience. I have again and again known persons whose constitutions were, as far as could possibly be discovered by any external marks, nearly the same with reference to their powers, in some cases use a certain proportion of animal food with the greatest advantage in every respect, and in others the very same proportion was productive of the very worst effects; and such has occurred in like manner with regard to food of a vegetable kind.

I think there cannot be a question, that much mischief is committed from time to time, in the treatment of the incipient stage of tuberculous disease of the lungs, by an over-anxiety on the part of the physician to gain some particular object by the

employment of food of a very light or very nutritious nature. For example, it is common for medical men to prescribe a vegetable diet, when the tubercular deposits in the lungs are in a recent state; and it is supposed, that it will assist in retarding the growth of such morbid formations, or else in preventing the occurrence of the suppurative process in them; and this will undoubtedly be the case in many instances, but in others it will be productive of the most decidedly injurious effects in accelerating the rapidity of their growth, or in hastening the occurrence of the process of softening. Food almost exclusively of a vegetable kind will be profitable just when it contributes sufficiently to nourish the body, and when it does not in any way tend to weaken its tone; for it is possible for it to supply the waste of the system, and, notwithstanding this, the new particles which are deposited in the place of the old may not be of such a nature as to give rise to what may be called a vigorous state of organization. Now, a diet almost exclusively vegetable, at an early stage of Pulmonary Consumption, may possibly, to all appearance, be sufficient to prevent any diminution of the plumpness of the body, while, at the same time that this is the case, it may be undermining its powers. I do not think, that there is any other condition that stands more in need of a regimen which will give strength while it renews the waste of the body, than that of the consumptive. It is certainly, however, an exceedingly difficult thing to supply a person of such a habit of body with food sufficiently nourishing for the purpose of maintaining or promoting its tone, without its being, in some respect, productive of certain injurious effects.

In the use of animal food, there is as much danger of doing mischief by its over-exciting effects, as there is in that of vegetable by its depressing. Although a diet composed in a great measure of animal matter may be well suited to that weak state of the system which is an almost invariable accompaniment of tubercular formations in the lungs, still it cannot be employed, except in a very few instances, as an almost exclusive regimen,

without being productive of too much general as well as local fulness of the system, and, consequently, all those injurious effects which such fulness is known to occasion. I may observe here, that even in cases where the body is in an emaciated state, and where it might be supposed there would be very little risk of doing harm by the use of any thing that would tend in a high degree to impart strength, a large proportion of animal food will be found quite too stimulating; and this will be sometimes so much the case, that it would be impossible to continue its use for a considerable length of time without the most mischievous effects.

With reference to the regimen of a patient labouring under Pulmonary Consumption in its primary stage, I am of opinion, that, in nine cases out of ten, it is not sufficiently nourishing. It would certainly be a great error to give too much animal food, and too little vegetable; but, while this is the case, it would be equally as great a mistake to give too much vegetable food and too little animal. The great object which the physician should keep in view, with regard to the regimen of a person labouring under this disease, is the avoidance of debility of the system on the one hand, and over-excitement on the other; for if it should be productive of either of these extremes, it will not fail to prove injurious. I think, however, I have known far more patients suffer in consequence of the food not being sufficiently than by its being too nutritious. In cases where there is a pretty full state of the system, it is certainly proper that the food should be much less nourishing, than when it is in an emaciated condition; but while this is the case, still Pulmonary Consumption is a malady of a constitutional as well as a local nature; and unless the aliment be of such a kind as to diminish or remove the weak state of the system which is so favourable to the formation and growth of the tubercular formations in the lungs, it cannot be at all suitable. I am quite convinced, that in very many instances the greatest mischief has been done by keeping patients confined to a low diet in this disease; and I am well

satisfied, that such a regimen as is calculated neither to over-excite nor debilitate the body will be found in every case the best. I have frequently known patients, at the stage of the disease in question, prohibited the use of animal food, in every proportion, for weeks or months together. Now, I am decidedly of opinion, that such a practice has, in the great proportion of cases, accelerated rather than retarded the progress of the disease. I think it is better to allow a patient labouring under tuberculous disease of the lungs in an incipient stage, food of a nutritious nature, notwithstanding it might be necessary, during its employment, to have recourse frequently to the detraction of small quantities of blood, the use of cooling saline laxatives, and other remedies of an antiphlogistic kind. I do not know any thing that is more likely, when there is a predisposition to the occurrence of Pulmonary Consumption, to bring the disease into action, than a regimen which is not possessed of sufficiently nutritious qualities; and when the tubercular formations in the lungs are already in existence, I do not know any thing which will be more likely to increase the rapidity of their growth, or to hasten the occurrence of the process of softening. There are, certainly, many circumstances which will render it necessary for the food to be more nutritious at the same stage of the disease for one individual than for another, although each may be possessed apparently of the same constitutional powers; and again, in the same case, it may agree much better at different times. It is, therefore, with the use of food, as with that of medicine:—we may lay down general rules; but to these there must be a great many exceptions, when we take charge of persons possessed of different constitutional powers, or even although they may be nearly the same. If a patient, affected with tuberculous disease of the lungs, has been accustomed from childhood to the use of very nutritious food, it will be found, that, by confining him to that which is not nourishing, the effect will still be worse than if he had been accustomed to poor diet from very early life.

I think that, in every case of incipient Pulmonary Consump-

tion, the food, no matter what it is, should be taken in small quantities at a time, as in this way it will not only be more completely assimilated, and be thus more conducive to the nourishment of the body, but it will be also less likely to excite the system. I am inclined to believe, that, in all cases in which the body generally is in a weak state, the great danger in the use of food has more a reference to the quantity which is taken into the stomach during each meal, than the absolute quantity which is consumed during any given period. If, while the system is in a debilitated condition, I care not from what cause the weakness is occasioned, the stomach be loaded with food, no matter with what ease it may be digested, it will be found to create a temporary state of feverish excitement. I am, therefore, led to believe, it is more from the quantity of food which is taken, than from the quality, that the physician will find injurious effects produced in that stage of the disease of which I am treating. I may here observe, however, that whether the food be vegetable or animal, or a proper proportion of both, it cannot possibly be too well softened by the process of cooking, before it is introduced into the stomach. With reference to animal food, I think it will be much more nutritious, and, at the same time, be much less likely to disagree with the stomach, or the system generally, when it is taken in the fluid than when taken in the solid form. I would therefore strongly recommend, in the disease in question, the use of soup, as often as possible, prepared from the lean of beef or mutton.

While it is necessary, at that stage of Pulmonary Consumption in question, to pay considerable attention to the quantity as well as to the quality of the food which is used, the same is the case with reference to the drink; and if much mischief may be committed by the former, a still greater degree of injury may be produced by the latter. I stated, in a former part of this work, that nothing tends more to break down the powers of the constitution, and thus favour the formation of pulmonary tubercles, than the immoderate use of ardent spirits. Now, if such be the effect of this pernicious fluid when used to excess, before the tubercular

secretion has commenced, what will be the consequence if its use be continued after such secretion has actually taken place? When stimulating drinks are used at all in that stage of the disease of which I am treating, they should be possessed of nutritious qualities; so that when any thing of the kind is deemed necessary, porter, ale, or wine will be much less objectionable than ardent spirits. If the diet is sufficiently light and nutritious, and if the patient has not been long habituated to the use of stimulating drinks, I think that in almost every instance, instead of being in any way profitable, they would be, of all other things, the most liable to accelerate the rapidity of the growth of the tubercular formations on the one hand, and hasten the occurrence of the process of softening on the other. In constitutions habituated, as it were, to the stimulus of spirituous liquors previously to the occurrence of the morbid formations referred to, it would be attended with considerable risk to withdraw suddenly the use of such liquors, after the pulmonary disease has actually taken place; and hence the great difficulty in determining how certain habits, which are injurious to the vigour of the system, are to be abandoned with the greatest degree of safety. I am quite satisfied, that much circumspection is requisite, at an early stage of Consumption, in the reduction of stimulating drinks; for no matter how conducive they may have been to the occurrence of the tubercular formations in the lungs, still, inconsistent as it may appear, their sudden withdrawal will, in a large proportion of cases, only tend to accelerate the fatal termination of the disease. It would therefore appear, on these various accounts, that pernicious as the use of stimulating drinks, such as I have just mentioned, are at an early stage of Pulmonary Consumption, still in the habitual drunkard they have become a necessary evil, and consequently cannot be dispensed with altogether without considerable danger. This is at least the case, unless the reduction be made very gradually. I am of opinion, that, except habit renders the employment of distilled or fermented liquors to a certain extent necessary at the stage of tuberculous

disease of the lungs of which I am treating, such fluids should not be taken even to the most moderate extent.

Clothing.—It has been already stated, that one of the best preventive means against the occurrence of Pulmonary Consumption, when there is a constitutional tendency to it, is the proper defence of the surface of the body from the impressions of cold. Now, if it be so very profitable before the tubercular formations have taken place in the lungs, it must be still much more so after they are in existence. It is, in fact, quite impossible to derive much benefit from any remedies which are employed at that stage of the disease referred to, unless the surface of the body be kept from the chilling effects of cold, or the exciting effects of heat. Although cold is much more generally injurious in its operation on the system, than heat at an early stage of this disease, yet both are to be regarded as being highly prejudicial when in excess. It would therefore appear, that there must be very considerable difficulty, at different seasons of the year, in regulating the quantity or quality of the clothing, in such a manner as to be profitable, with regard either to retarding the progress, or to promoting the absorption of tubercular growths. The powers of generating heat are subject to the greatest variety in different consumptive patients at the same stage of the disease; so that the clothing which would be in every respect suitable in one case, would not be in any respect proper in another, even when the powers of the constitution in both were apparently precisely the same. There is a wonderful difference between persons labouring under Pulmonary Consumption, and various other diseases of a constitutional kind, with respect to the necessity for attending to the temperature of the surface of the body; and this is the case when they are accompanied with an equal degree of debility. It would appear to me, that there is no malady incident to the human body in which the powers of generating heat are lower than that of Consumption in its incipient stage; and notwithstanding that there is the greatest

diversity in this respect in persons of different ages and of different degrees of strength, still it will be found to hold good on a careful comparison of a considerable number of cases.

In every instance during the early stage of this disease, it is necessary that the surface of the body should be covered in such a manner that the secreting functions of the skin may be preserved from suffering, whether with reference to an increase or a diminution of the perspiratory fluid. When this fluid is increased much in quantity by keeping the body too warm, that debility of the system which favours the formation and growth of tubercles is increased; and when it is rendered scanty by the too great exposure of the surface to cold, that state of congestion of the blood vessels of the lungs which is so favourable to the growth and various destructive changes which tubercular formations undergo, is produced. It may be laid down as a general rule, relative to clothing in this disease, that, during both the day and night, it should be in every instance equal to prevent any sensation of cold, while it does not oppress the body so much as to give rise to an excessive degree of heat. In those who are possessed of pretty full habits of body, the powers of generating heat are commonly much greater than in those who are considerably emaciated, and consequently require, during the prevalence of cold weather, a much lighter covering. It will also be found, that, in the great majority of cases, a less weighty covering is necessary for those who are young than for those who are somewhat more advanced in life, although in both cases the strength of the body is apparently the same. When that part of the dress worn next the skin is of a proper kind, it is not requisite that its absolute quantity should be very great. While it is necessary to prevent any injurious effects from cold, it is also requisite to guard against the covering employed for this purpose being productive by its weight of any debilitating results. Now, if that part of the dress worn next the skin be of a warm nature, there will be, even during the prevalence of cold weather, no occasion for its amount being altogether very considerable.

I have observed, in a great many cases, that, in consequence of the dress being too weighty, there was such profuse perspiration produced on taking the most moderate exercise, that a great increase of debility was the result. In this country, that part of the dress worn next the skin should be of woollen, during eight months of the year. It is common for persons possessing great debility of constitution, or for those labouring under Pulmonary Consumption in its incipient stage, to wear very warm clothing with reference to one part of the body, and that which is capable only of forming a very slight defence against the impressions of cold with regard to another. I am quite convinced, that, in many cases, the light cotton stockings, and the light shoes or boots which are very generally worn by females during the prevalence of the coldest weather, are productive of the greatest mischief, where there is only a predisposition to the occurrence of tubercular formations in the lungs; but after these morbid growths are in existence, there is no habit which would appear to me more likely to do a great deal of injury, with respect either to accelerating their growth, or to establishing the process of softening. I am perfectly satisfied, that cold is equally as pernicious to the consumptive patient when applied to the feet and legs, as to any other part of the body. I would say altogether with reference to dress at an early stage of this disease, that it should be of such a kind, that the sensation of cold should not be experienced with reference to any part of the body; and at the same time that this is the case, there should be the greatest care taken to avoid the use of such articles of clothing as would be productive of too much heat.

If the habit of wearing tight-laced stays be injurious before the formation of tubercles has taken place in the lungs, it is still much more so after these morbid growths are in existence. Any thing that compresses the chest and abdomen has the effect of increasing that state of vascular congestion of the lungs which it should be the particular object of the physician to remove as far as possible. While, therefore, it is right to defend the surface of

the body from the impressions of cold by the use of suitable articles of dress, it is requisite that every part of it should be as slack as possible.

Climate.—Before the formation of tubercles in the lungs has taken place, a residence in a climate whose temperature is uniform, and at the same time warm and dry, is productive of the very best effects, where a constitutional tendency to the occurrence of such formations exists. Although this will not be the case to the same extent, when Consumption has thoroughly manifested itself; yet, if many of those who are labouring under this disease are allowed to reside in a cold changeable climate during the winter months, it will be found, in spite of all that can be done for the purpose of promoting the absorption of pulmonary tubercles, or of retarding the rapidity of their growth, that they will very soon give rise to such organic changes as will speedily put an end to life. It would appear from the testimony of a great many respectable writers on the influence of climate on this disease, that all extremes, whether of heat or cold, are highly injurious. For example, it would appear to be productive of the most rapidly fatal effects to keep a patient, after the tubercular growths in the lungs have taken place, in a climate whose temperature is uniformly as high as eighty degrees of Fahrenheit's thermometer; and, again, it would be no less injurious to keep a patient labouring under this disease at a temperature proportionably as low as this is high. It would therefore seem, that the benefit resulting from change of climate, in the case of Pulmonary Consumption at an early stage, will depend upon the mildness and uniformity of its temperature. I am quite satisfied, that, if a person labouring under this disease in its primary stage be kept in a climate whose heat never rises much above seventy, nor sinks much lower than sixty degrees, there will be the best chance of effecting a cure by the employment of suitable remedies, or else there will be the greatest degree of likelihood of retarding its progress.

Beneficial as a mild climate is to a consumptive patient, still I

am of opinion, that many are hurried to the grave in consequence of different effects resulting from travelling from one country to another for a more favourable climate; and notwithstanding all that has been said in favour of consumptive patients removing for such an object from their own homes to some distant country, still I fear very much that in nine cases out of ten, they are rendered much worse instead of better, in consequence of the injurious effects thus occasioned. I am, therefore, led to believe, that if a person labouring under Consumption remain at his own home, where he will enjoy every requisite domestic comfort, his chance of recovery will be quite as great as if he were to remove to a more suitable climate, and be in consequence exposed to all the risk resulting from travelling, and to all the want of domestic comfort, which such removal must necessarily occasion. I am quite satisfied, that a very large proportion of the patients which have been cured by change of climate, were not affected with tuberculous disease of the lungs, but rather with chronic disease of the mucous lining of the trachea, and ramifications of the bronchi; so that it would appear to me, that the change in question is more profitable with reference to the last-mentioned affections, than to tubercular formations.

In cases of tubercular infiltration, any attempt to change the residence of a patient from an unfavourable to a more favourable climate, provided such change be attended with any excitement of the lungs, or of these organs in common with the rest of the system, will only tend to hasten the occurrence of the fatal termination. The fact is, with reference to such change, its object is the prevention of pulmonary irritation and pulmonary congestion, by its favouring a more uniform state of the vascular system; and if these intentions be not fulfilled, no matter what the cause may be, the disease must be rendered much worse instead of better. It would therefore seem, that before any attempt is made to remove a patient labouring under this disease to a more favourable climate, it is absolutely necessary to pay strict attention to the state of the lungs; and when what is denominated tuber-

cular infiltration exists, I think such removal would only be attended with the greatest mischief.

I am led to believe, that, in almost every instance where there is a considerable degree of vascular fulness of the lungs, as well as the rest of the system, by sending a patient to a climate whose temperature is much higher than that to which he has been accustomed, the progress of Pulmonary Consumption will be very much accelerated. This has been the case in every instance where I have seen such a removal practised. It would therefore appear to me, that it is in those who are of delicate constitutions, and where there is no local or general fulness of the vascular system, that change of climate will prove most safe, and at the same time be most profitable. I would say, that, as far as my experience extends, it is in such cases of tuberculous disease of the lungs as are not accompanied with any considerable distention of any part of the vascular system, that a change of climate is desirable, even under the most favourable circumstances. I would certainly prefer keeping a patient, during the prevalence of cold weather, in an artificial climate, than allow him to remove to one at a great distance from his own home, where he could not enjoy any other advantage than that of climate with reference to a cure of his disease. It should be kept in mind, that such a change as that in question cannot possibly of itself give rise to the absorption of the tubercular formations which are present in the lungs, and that all it can do is merely to bring the system into a favourable condition for the operation of the requisite remedies which are capable of removing such formations. When patients, labouring under this disease, are removed from a cold to a warm climate, it is very generally the case, that medical men, as well as the patients themselves, think nothing more is required to be done; and hence there is a complete neglect of those very things which are of all others the most essentially necessary, with a view either of retarding the progress of the disease, or of curing it altogether.

Exercise.—In order that exercise may prove useful at that

stage of Pulmonary Consumption of which I am treating, it is necessary that it should be of such a kind as will maintain or promote the tone of the system, while it does not endanger any one part by the excitement which it must necessarily occasion to a greater or less extent. I think nothing could possibly be more dangerous, while tubercles are in their primary state, than that of exercise on horseback, or any other kind of active exercise which tends much to excite the system. There is no species of exercise which seems so very favourable to persons affected with tuberculous disease of the lungs in its incipient stage, as that of sailing; and this, I conceive, does not arise so much from the bracing effects of the sea air, as the gentle passive motion of the body which it occasions. When the weather is warm, or is at least at such a temperature as not to give rise to catarrh, or determine the circulating fluids towards the lungs, I think the combined effect of the respiration of pure air and moderate exercise is invaluable to the consumptive patient; but, while this is the case, I am sorry to say, that these means are very frequently so far abused as to become, instead of a source of much good, a source of the greatest mischief, by producing such general or local excitement of the system as will either increase the rapidity of the growth of the tubercular formations in the lungs, or hasten the occurrence of the process of softening. I fear it is very seldom that medical men, when recommending exercise to patients labouring under the primary stage of Pulmonary Consumption, take the powers and peculiarities of their constitutions into proper consideration. This is evidently the case, or else we would not hear so much about the necessity of different species of violent exercise of the body for those who are labouring under this disease. I am of opinion, that, while it is requisite to promote the vigour of the system by exercise, it is necessary to guard against the employment of such as will either exhaust the powers of the body by its violence, or else excite the pulmonary organs, or these in common with the rest of the system, into a state of too great action. I do believe,

therefore, that sailing, and various other kinds of passive exercise which are not calculated to over-excite nor debilitate the system, are to be regarded as the most profitable. The exercise of the active kind which I would consider by far the most beneficial is that of walking.

After the formation of tubercles has taken place in the lungs, I do not think that any thing could be more injurious than that of inhalation as a means of extending the chest, and, at the same time, of giving strength to the respiratory muscles. No matter how diminutive the capacity of the chest may be, or how much an increase of size would tend to favour the cure of the disease, still it is impossible, after the lungs are in a diseased state, that forced inspirations could have a profitable effect, either in promoting the absorption of the tubercular growths, or in retarding the process of softening from taking place in them. While considering the best mode of preventing the occurrence of tubercular formations in the lungs, I stated my opinion relative to the danger arising from forced inspirations. Now, if there be considerable risk from this practice before the occurrence of tubercles in the lungs, it must be infinitely greater when they are in existence. I may say, that in every instance where I tried inhalation even to the most moderate extent, I found it in every respect highly injurious, no matter how soon it was put in practice after the diseased formations in the lungs had taken place. The fact is, so far from violent exercise of the respiratory muscles being profitable, I think all exercise of such muscles should be avoided as much as possible. On these various accounts, I am decidedly of opinion, that inhalation is highly improper at an early stage of tuberculous disease of the lungs.

Having made the foregoing general observations relative to the treatment of the incipient stage of Pulmonary Consumption, I will now proceed to consider the best mode of treating some of the most common symptoms of that disease.

On the Treatment of the most troublesome Symptoms which occur during the incipient stage of Pulmonary Consumption.

Cough.—One of the earliest and most troublesome symptoms which occur during the incipient stage of tuberculous disease of the lungs, is that of cough. I am quite satisfied, that there is nothing relative to the treatment of the primary stage of Consumption that requires more discrimination on the part of the physician, than this symptom. For example, when it is accompanied with any inflammatory irritation of the mucous lining of the trachea, and ramifications of the bronchi, it must be treated in a totally different way from what would be requisite where no such inflammatory irritation exists. I am quite convinced, that very much of the success of whatever means be employed for the purpose of promoting the absorption of tubercular formations in the lungs will depend upon the judicious management of this symptom; and notwithstanding that it has received, on account of its being generally very distressing, more attention than any other,—still I am satisfied, that the remedies which have been too frequently employed for its removal or relief have not been well calculated to fulfil these objects; nor have they been, in many instances, even safe, as far as the tubercular deposits are concerned. In the treatment of the cough which accompanies the early stage of Consumption, the remedies should always be, as far as possible, of a soothing nature; for if this be not the case, and if they be calculated to excite either general or local irritation, they cannot fail to be productive of the greatest mischief. With the view of promoting expectoration, and relieving the cough, it is a very common practice at that stage of the disease of which I am treating, to administer different preparations of squills, or other medicines which are calculated to produce very considerable excitement of the blood vessels of the mucous lining of the trachea, and ramifications of the bronchi. Now, as it should be the anxious desire of the physician to quiet, rather than

increase any irritation in these parts, it is obvious that such a mode of practice would be any thing but profitable or safe.

Notwithstanding the great powers of opium in allaying cough, with whatever state of the pulmonary organs such symptom is connected,—still, like the irritating expectorants, it is not safe at the stage of Consumption in question, on account of its great tendency to disorder the whole system, and thus give rise to such a state of its various parts as is incompatible with the removal of the tubercular formations, and likely to accelerate the rapidity of their growth, or hasten the occurrence of the process of softening. I am perfectly satisfied, that the effects of this medicine in quieting the symptom referred to will not be equal, in the great majority of cases, to compensate for the aggravation to which it gives rise, of the morbid formations in the lungs, from the presence of which such symptom is in a great measure occasioned. By combining opium with a proper proportion of hippo or tartar emetic so as to determine to the skin, there cannot be a doubt that it is rendered much safer; but although this is the case, yet I am convinced, that, when given in such quantities as to produce a suitable anodyne effect, no matter with what it is combined, it will aggravate the tubercular formations in the lungs, while it gives relief to the cough. I do not think that there is any single article of the *Materia Medica* so much employed in the treatment of Consumption as that of opium; and at an incipient stage of the disease, there is no other which would appear to me to be capable of doing more real mischief, with reference to these formations.

There cannot be a question as to the necessity for the use of narcotics, no matter what other remedies are employed for the purpose of relieving cough during the primary stage of tuberculous disease of the lungs. There is, in fact, no medicine that will be productive of an immediate effect in the relief of this symptom, unless it be of such a nature. It would therefore appear, that although opium be not that narcotic which is proper, yet some medicine of the kind must necessarily form one

constituent of whatever is taken with the view of relieving it. Hemlock and henbane are narcotics which are admirably calculated to quiet pulmonary irritation; and while they operate thus, they are not, like opium, productive of any general or local excitement of the system. Digitalis is a sedative which is most valuable in the treatment of the cough accompanying the presence of tubercular formations in the lungs; and while this is the case, it would appear, from what has been already said relative to the effects which it produces by its operation on the kidneys, that it must be profitable in many other respects at an early stage of these formations. When digitalis, hyosciamus, and hemlock are combined in such quantities as are suitable to the state of the constitution and the urgency of the case, I think that the effect would appear to me to be decidedly more certain than what is obtained by the use of any of them singly. In the employment of remedies, such as those just mentioned, which are calculated to relieve cough by their sedative operation, I am satisfied that, in nine cases out of ten, the doses are too large, and taken at too long intervals. I would, therefore, recommend the employment of very small doses at short intervals, as the best method not only of securing their sedative effect, but also of preventing them from disagreeing with the stomach. The addition of a very small quantity of hippo or tartar emetic to the hyosciamus, hemlock, and digitalis, will be attended with the greatest advantage. Prussic acid, which has been so much praised for the certainty of its effects in relieving cough, is not a medicine which can, as far as my observations extend, be trusted to for the relief of that which accompanies the incipient stage of tuberculous disease of the lungs. I have tried it in different constitutions, and also in different doses, and I can safely say, that I never found it productive of the same effect in the relief of pulmonary irritation, even when carried to the greatest length compatible with the safety of the patient, as the smallest dose of any of the sedatives to which I have just alluded.

I have known the greatest advantage arise from the use of the

nitro-muriatic acid bath, for the relief of the symptom in question, when employed of the same strength, and in the same manner, to the feet and legs, as it is in disease of the liver. Whether the good effects of this bath are owing to its irritation of a part remote from the seat of the disease or not, I am unable to say. It would, however, appear to me decidedly more valuable than any other remedy with which I am acquainted, for not only relieving the symptom referred to, but also for changing, to a certain extent, that diseased condition of the mucous lining of the trachea, and ramifications of the bronchi, with which it is generally combined.

In some cases I have found an irritating bath, composed of one pound of common salt, half a drachm of iodine, and eight gallons of warm water, when applied to the feet and legs, productive of the most profitable effects in quieting pulmonary irritation, and, at the same time, in retarding the growth or promoting the absorption of the tubercular formations. There is nothing more certain than that the use of counter-irritants, in the treatment of the early stage of Consumption, is in many cases highly injurious, on account of the excitement which is communicated to the lungs. Now, by the use of either of the irritating baths which I have just mentioned, there is no risk whatever of any irritation being communicated to these organs; and while this is the case, they will be found to reduce, with the greatest certainty, any morbid fulness of the blood vessels, in whatever part of the internal respiratory apparatus it may exist. I am fully persuaded, that, from the use of these stimulating baths to the feet and legs, more benefit will be produced in the treatment of the cough, which is generally so troublesome from a very early stage of the existence of tubercular formations in the lungs, than from that of almost any other remedies.

It is in many cases of very little consequence what means are employed at an early stage of Pulmonary Consumption, for the purpose of relieving cough, unless the air which is respired be at a certain temperature, and be, at the same time, possessed of

the greatest purity. Although I do not believe that a change from a cold climate to one of such a temperature as is most favourable for the consumptive can be in itself of much avail, as far as the removal of the tubercular formations in the lungs is concerned, yet this is not the case with that symptom which I am now considering; for I have known many instances where it was relieved, in an almost miraculous manner, by a short residence in a uniform, and, at the same time, a moderately warm and dry climate. It is possible, where patients labouring under this disease can keep within doors, to form an artificial climate which may be productive of much good. As long, however, as there are tubercles present in the lungs, it is of no consequence what means are employed, they will be found only to give rise to a temporary good effect.

Pain of Chest.—There are very few patients who do not suffer more or less from pain of chest during the progress of the stage of Pulmonary Consumption of which I am treating. It is, in fact, in a few instances, a symptom which is more distressing than that of almost any other. For the relief of pain of chest, it is a very common practice to use blisters, and other counter-irritating applications of a debilitating nature. It must appear, from what has been already said relative to these means when employed with the view of diminishing the rapidity of the growth, or promoting the absorption of tubercular formations in the lungs, that they cannot be had recourse to for the relief of the symptom in question, with any degree of safety as far as such formations are concerned. In every case where there is any reason to suspect the existence of a considerable degree of distention of the blood vessels of the lungs, the application of leeches to the chest, or the detraction of a suitable quantity of blood from the arm, will answer the purpose better than almost any other thing that can be done for the relief of this symptom. It is mostly in such patients as are rather of full habits of body, that pain of chest is most troublesome during the incipient stage of tuberculous disease of the lungs; so that the bleeding is not only safe with regard

to the relief of pain, but is also useful for the purpose of promoting the absorption, or retarding the growth of the morbid formations in these organs, with which it is combined. In several cases where there was a full habit of body, I have had occasion to apply, for the relief of the pain referred to, from four to six leeches every sixth or eighth day, and have always found them productive of the greatest advantage. It is wonderful how much blood patients labouring under the incipient stage of Consumption can lose with advantage, if they be of full habits of body, provided it be taken away in small quantities at each bleeding.

It is very commonly the case, that the pain of chest which occasionally occurs during the early stage of Pulmonary Consumption, is not situated in the lungs or any part of their appendages, but in the intercostal muscles. Now, when these are its seat, there is nothing that will afford so much relief, and, at the same time, be attended with so much safety, as a combination of camphor and turpentine, if applied in such a manner as to give rise to a considerable degree of cutaneous inflammation. I would, however, even for this muscular pain recommend the occasional application of a small number of leeches. The addition of six or eight grains of the extract of belladonna to a Burgundy pitch plaster of sufficient size for the chest will be found, in many instances where the pain is situated in the intercostal muscles, productive of the most soothing effects; and it is an application which I would therefore strongly recommend.

Hemoptysis.—Spitting of blood is an occurrence which is, at every stage of tuberculous disease of the lungs, attended with very considerable danger; and it is one which it is necessary to suppress as expeditiously as possible, on account of the great prostration of the system which it occasions when the quantity of blood lost is not at all considerable. While, however, it is necessary to check this hemorrhage with as much rapidity as possible, the greatest circumspection must be exercised, lest the remedies which are employed for that purpose should be productive of more harm than good. For example, if an attempt

be made to repress it by detracting very large quantities of blood, the powers of the system may become so far prostrated that they will never completely rally, and the remedy may thus be much worse than the disease itself. Although, during the incipient stage of Pulmonary Consumption, patients can bear the loss of small quantities of blood with the greatest benefit, particularly when of full habits of body ; yet the loss of much of this fluid at once would not fail to be productive of the greatest mischief. Persons of scrofulous constitutions cannot bear large bleedings before the occurrence of the diseased formations in question in the lungs ; but after such formations have taken place, the prostrating effects which they occasion must be still attended with infinitely more danger. From all that has been said, in this work, relative to the danger arising from the employment of any thing during the incipient stage of Pulmonary Consumption that would be productive of much debility, it must appear, that, for the purpose of repressing hemorrhage from the lungs, large bleedings are highly dangerous. It should be kept in mind, while employing the requisite means for fulfilling this object, that even a few ounces of blood lost from the lungs in this way is succeeded by the greatest prostration of the system ; and if there be a large quantity taken away by means of the lancet, or in any other manner, the effects might be very dangerous. I would, on these accounts, strongly urge the necessity of the physician's being most guarded respecting the quantity of blood he recommends to be detracted in a given time, with the view of retarding the hemorrhage in question. Four or five ounces would appear to me to be nearly the average amount which can be taken away with advantage at each bleeding. The quantity, however, must necessarily vary considerably in persons of different ages, and also in persons whose vascular system is in different degrees of distention.

How far, under any circumstances, blisters and other counter-irritants are profitable in suppressing pulmonary hemorrhage, I cannot express a decided opinion. I am, however, quite convinced, that that which occurs when there are tubercles present in the

lungs is not benefited by such applications; and therefore think that they should not be employed. They are, in fact, both too stimulating and debilitating to be profitable or safe. The turpentine application to the chest will be most advantageous in restraining the hemorrhage, while it will not be productive of any local or general excitement, or local or general debility. Another great advantage which the turpentine has over all other applications of the counter-irritating kind, is the suddenness of its operation.

For restraining the hemorrhage which occurs during the stage of tuberculous disease of the lungs in question, the use of cooling laxatives and diaphoretics, with the addition of suitable sedatives, would appear to me to answer best in every point of view. The best sedative which can be employed under such circumstances, is a combination of extract of hyosciamus and tincture of digitalis. The last-mentioned of these would appear, however, to be by far the most essentially necessary. In some cases where there is a considerable deal of irritation of the trachea and ramifications of the bronchi giving rise to cough, the sedative combination referred to may not be of itself sufficient for the purpose of quieting such irritation; and, when this is the case, it becomes necessary to have recourse to the use of opium, which is, of all others, the most certain in its operation, although that which is most liable to disagree, so as to render it in many instances inapplicable.

One of the most essential things which can be attended to in the treatment of pulmonary hemorrhage, is to preserve the respiratory organs, and every other part of the system, in a state of absolute quietude. If this be neglected, there are no remedies, either of an external or internal kind, which will be found, in many instances, completely to answer the purpose. When, however, absolute rest is enjoined, the use of cooling laxatives and diaphoretics combined with that of sedatives, the application of turpentine to the chest as a counter-irritant, and the detraction of small quantities of blood, will, in almost all cases, be found

successful; and while this is the case, there will be no risk of exciting or weakening the system in such a manner as to give rise to any dangerous effects relative to the tubercular formations in the lungs.

There are some cases in which the pulmonary blood vessels are so very weak during the incipient stage of Consumption, that they are liable to give way from time to time, when they are not in what might be considered a state of morbid distention; and notwithstanding that such remedies as I have just mentioned may be adequate to put an end to one attack, they will not thus prevent the occurrence of another. I think that, in such cases as these, there should be a slight degree of permanent counter-irritation kept up on some part of the surface of the chest; and, in addition to this, there should be small but frequently repeated doses of nitre given in combination with hyosciamus, or some other suitable sedative. I can safely say, that I have never found any remedy so profitable as the nitre, for preventing the recurrence of the hemorrhage. I am unable, however, to give any explanation respecting the nature of its operation in producing this effect.

I think that there could not possibly be a more dangerous practice in the treatment of hemoptysis occurring during that stage of Pulmonary Consumption of which I am treating, than that which is so very general, of exposing a patient to a great degree of cold, with the view of moderating the force of the circulation. While, in treating this symptom, it is absolutely necessary to keep the surface of the body from being too much heated, it is equally as requisite to prevent its being too much chilled. The great risk arising from exposure to cold is the occurrence of inflammatory action in some part of the pulmonary organs, which would not fail to hasten the commencement of the suppurative process in the tubercular formations. It would, on these accounts, appear to me, that whether the body be chilled by being exposed to currents of cold air, or by the application to the chest of some cold fluid, the rapidity of the progress of

the disease may be very much accelerated. I have repeatedly witnessed cases in which exposure to cold, in the manner referred to, had, in every point of view, the most decidedly injurious effects: it is, therefore, a practice which I think should be completely abandoned.

Hectic Fever.—When there is any feverish excitement of the system during the incipient stage of Pulmonary Consumption, it is necessary that it should be removed with as much expedition as possible, as it tends in every case to hasten the progress of the disease. It is therefore requisite, that the physician should be watchful to prevent its occurrence on the one hand, and to remove it when it has taken place on the other. There is no diseased condition of the body in which there is so much difficulty in keeping down feverish symptoms as that of Pulmonary Consumption; and this is the case, in a great many instances, long before the powers of the constitution have been very much reduced by the presence of the tubercular formations in the lungs. The early occurrence of hectic fever is not so much owing to the extent of such formations, as to a difference in the natural powers of the constitution. I have, for instance, in some cases found, where only a very small proportion of the lungs was affected, that there was an infinitely greater tendency to the occurrence of fever, than where a much larger proportion of these organs was in a diseased condition. It does not, however, signify from what constitutional or local cause this feverish state is produced, it is necessary that such remedies should be employed as will remove it with the least possible delay.

As the early occurrence of the symptom which I am now considering is generally owing to a full, as well as to an irritable state of the system,—it will be found, in almost every instance in which this is the case, that while the employment of such means as are necessary to quiet irritation must be had recourse to, others must be used, at the same time, which are calculated to diminish all excessive fulness of the vascular system, whether it exists in the lungs, or in these organs in common with the rest of the

body. It would therefore appear, that for the purpose of treating the feverish state of the body in question, it is necessary, in the great majority of cases, to have recourse to remedies of a tonic, antiphlogistic, and sedative nature, either alternately or simultaneously. The best tonics are the mineral acids; and, when given in small and frequently repeated doses, they will, in every case of consumptive hectic at that stage which I am considering, be productive of the most cooling, and, at the same time, the most powerful tonic effect. I do not think that the use of these acids, more particularly the sulphuric, is at all incompatible with the presence of a very considerable degree of local or general fulness of the vascular system. I have given them freely in many instances where I deemed it necessary at the same time to detract small quantities of blood, or employ cooling laxatives, or some other antiphlogistic remedies. Digitalis is, of all other sedatives, that which I would consider by far the most profitable in the treatment of the symptom in question. It should be given in small, but frequently repeated doses. It will be found, that the use of saline laxatives in small doses will be productive of the most salutary effects, when a feverish state of the system, such as that referred to, is present. It would appear to me, that by the combination of saline laxatives, tincture of digitalis, and aromatic sulphuric acid, the greatest benefit will be produced. In many instances, it is necessary to combine with these laxatives some very light bitter, such as colombo or cascarilla. By such a combination as this, the feverish excitement of the system will be brought rapidly down; and while this is the case, the tone of the stomach and bowels will be preserved. The effect which is produced in the reduction of hectic fever, when connected with any local or general fulness of the vascular system, is in some cases wonderful, where there are only a few ounces of blood taken away, either by leeches or the lancet. In many patients possessing a debilitated condition of the body in connexion with a feverish, I have found the greatest benefit produced by the spirit of nitre, either with or without the addition of

the tincture of digitalis. In some cases I have given a drachm of the spirit of nitre, every two hours, with the most decidedly cooling effect; but when taken in combination with the digitalis, this was always considerably greater. It would appear to me, no matter what feverish state of the body exists, it will be most expeditiously removed by such remedies as promote the secretions either of the skin, kidneys, or intestines. It would therefore seem to be essentially necessary, that some of these secretions should be increased by the use of the remedies which are employed; and it would appear, that the increase of that of the kidneys is productive of by far the most beneficial effects.

It would be quite impossible for the physician to afford much relief to a patient labouring under a feverish state of the body during the incipient stage of Consumption, by the most judicious remedies which he could employ for that purpose, if he were not to pay particular attention to the quantity and quality of the food and drink which are taken, as well as to every thing else that could in any way excite the system. If, for instance, the stomach were loaded with weighty, indigestible food, it would not be possible to keep down feverish excitement by the use of the most suitable remedies; and if, on the other hand, the drink were too stimulating, the very same would be the case.

From what has been said altogether respecting the treatment of Pulmonary Consumption, while the tubercles are in a crude state, it must appear, that the success of whatever curative means are employed will depend very much on their neither exciting nor depressing the system too much; for, should either of these effects be produced, the disease would be rendered much worse instead of better. The fact is, that one of the greatest difficulties which presents itself to the physician in the treatment of the primary stage of tuberculous disease of the lungs, is on the one hand the maintenance of the vigour of the body without the production of too much excitement, and on the other the reduction of all morbid irritation, whether present in the lungs, or in these organs in common with the rest of the system, without giving

rise to a morbid state of depression. While, during the progress of this disease, it is absolutely necessary to attend to the state of the body as a whole, it is also requisite to watch the condition of its individual parts; and this would appear to me to be more particularly the case with reference to the lungs, which are the seat of the tubercular formations. If it be difficult to prevent either general excitement or general debility as a whole, the same is the case with reference to its particular organs; and although this is the case with regard to each important part of the body, still it is more especially the lungs where this difficulty is experienced. It is a fortunate circumstance for those who undertake the treatment of the disease in question at an early stage, that whatever remedies are profitable for the purpose of effecting its cure, the same are also useful for retarding its progress; and what is most valuable for curing or palliating a symptom is, in like manner, most advantageous for curing or palliating that diseased state of the lungs with which it is accompanied.

On the Remedies which are most profitable for the Treatment of Pulmonary Consumption, during its Advanced Stage.

THE second stage of Pulmonary Consumption, or that which commences with the suppuration and discharge of the tubercles, requires to be treated in a way in many respects different from the first, which I have just been considering. By the proper application of the various curative means recommended in this work for the treatment of the primary stage of tubercular formations in the lungs, their absorption may be effected in a considerable proportion of cases, and in consequence a perfectly healthy condition of these organs may be established; but, when caverns are formed by the softening and discharge of such morbid formations, it is not possible, in the great majority of instances,

to do more by the most judicious means which can be employed, than to palliate some of the most troublesome symptoms. Now, while this should lead to the greatest activity, with reference to the use of suitable remedies during the incipient stage of Pulmonary Consumption, it should not lead to inattention with regard to the employment of such as have any chance of being profitable, no matter how slight that may be, when the disease is advanced to its last stage. It should never be forgotten, that the very utmost the most appropriate remedial measures can possibly accomplish at any stage of this disease, is to bring the lungs and the rest of the system into such a condition, that the morbid deposits may be removed by the powers of nature on the one hand, and the caverns left after the discharge of the softened tubercular matter may be solidified by the same powers on the other. In many instances, the crude tubercles are so very numerous, and occupy such a large proportion of the lungs, that no matter what assistance nature may receive, she will be quite inadequate to accomplish a cure; and again in the great majority of cases, the caverns left after the softening and discharge of these morbid growths are of such magnitude, that the very same will be the case. It would therefore appear, that no matter how appropriate the treatment may be, whether in the primary or secondary stage of this disease, the powers of nature cannot possibly be brought, in many instances, into such a condition as to be equal to establish a cure.

In the treatment of Pulmonary Consumption in its advanced stage, the attention must be most particularly directed to the relief of individual symptoms as they present themselves; for when the powers of the constitution are much reduced, and when the morbid changes in the lungs are very extensive, it is seldom that a cure will be effected.

Pain of Chest.—In the second stage of tuberculous disease of the lungs, pain of chest is, in many instances, a most harassing symptom. It is more particularly in this stage of the disease that acute attacks of pleuritis or pneumonia are liable to occur.

Now as, at the time of such inflammatory attacks, the system is generally in a very debilitated condition, it is evident that the detraction of blood, to any considerable amount, is altogether out of the question. It will be found, however, that there are few cases, even where the powers of the system are low, in which a small quantity of this fluid may not be taken away with the greatest advantage. It will, for instance, be very seldom that from two to four leeches applied to the chest will not give immediate relief to the severest pain which occurs during that stage of Consumption I am now considering. I would, therefore, prefer taking away in this manner small quantities of blood, to the employment, as is very generally the case, of powerful counter-irritating applications. I have never known, in any case, the detraction of a very small quantity of this fluid attended with any debilitating effects; nor have I, on the other hand, known a single patient who was not much weakened by the employment of blisters. In the second, like the first stage of Pulmonary Consumption, the application of turpentine to the chest will, in almost every instance, give the most sudden relief; while there will be no debility produced, in consequence of its employment, that could in any way hasten the fatal termination. In the treatment of the pain of chest in question, I think the most safe, and at the same time the most efficacious plan of proceeding, is to apply a few leeches, and afterwards to have recourse to the turpentine. In many instances, however, I have had occasion, for the relief of the pain referred to, to apply turpentine, without having recourse to any other means; and I can safely say, that I never found that it was not productive of the most beneficial effects, whether the bleeding was employed or not.

Cough.—Although cough is a symptom which is very distressing from the commencement of Pulmonary Consumption, yet it is generally much more severe in the advanced, than in the incipient stage of the disease. It must, however, vary very much in different individuals, as to its violence, and also as to its effects in prostrating the powers of the constitution, and in hastening the

progress of the various destructive changes which the tubercular formations in the lungs must sooner or later undergo. There cannot be a question, that, if it were not owing to this symptom, there would be no case of Consumption that would run such a rapid course as it does; nor would there be any in which the sufferings of the patient would be a tenth part so great as they are. During the progress of this disease, the cough must necessarily increase much in violence from the circumstance, that in proportion as the powers of the system give way, in the same proportion the mucous lining of the trachea and ramifications of the bronchi becomes affected with various morbid changes, as well as the tissues of the lungs by which the tubercular formations are surrounded.

It is certainly a most difficult thing to treat cough during the incipient stage of Pulmonary Consumption; but in the advanced, the difficulty becomes much greater, not only on account of its much greater severity, but also from the weak state of the system which is present at the time. The remedies which would be most effectual for the relief of this symptom would, in many instances, increase in severity some other, which would be no less harassing to the patient, and, at the same time, no less injurious with reference to the progress of the disease. Now, notwithstanding that this is the case in the first as well as in the second stage of the disease, still it would seem to be more especially applicable to the latter. No matter what the disease is, it will be found, that, in proportion as debility of the body increases, in the same proportion it becomes more difficult to employ remedies which will have a profitable effect in one way, without having an injurious effect in some other.

The use of opium in the advanced stage of Pulmonary Consumption is, in the great majority of instances, almost indispensably necessary for the purpose of relieving the symptom in question, although it is in many other respects highly injurious. In the first stage of the disease, when the cough is not severe, it is possible to relieve it very considerably without the aid of

this medicine; but in the advanced, when there are in all probability numerous caverns in the lungs, and, at the same time, extensive ulcerations of the mucous lining of the trachea and ramifications of the bronchi, it is absolutely necessary to a greater or less extent. The great difficulty which is generally experienced, with regard to the employment of opium, arises from its aggravating the feverish symptoms, which are, in nine cases out of ten, still far more distressing than the cough. For the purpose of preventing this medicine from increasing the hectic fever, while it diminishes the severity of the cough, it should be combined with a certain proportion of nitre and vinegar. Both of the last-mentioned medicines would appear to be most profitable; but of the two, the former, I think, is much more valuable than the latter. By combining twelve drops of laudanum with twenty grains of nitre and half an ounce of the best malt vinegar, it will be found, that when taken as a draught, and repeated every two or three hours, according to the severity of the cough and the powers of the system, it will be most profitable, without being productive of any increase of the feverish symptoms. I think, however, the effect will be altogether much better if the draught be combined with a wine-glassful or two of an infusion of hops. I have known patients, in a very advanced stage of Consumption, take opium in this state of combination, and to the same extent I have just mentioned, without the least aggravation of the hectic fever, or the least disorder of any part of the system arising from its use. It would appear to me, however, to be a medicine that is much better calculated to be profitable when there is little excitement of the system, than when it is in a feverish condition; and, again, it would seem to be much more profitable when the expectoration is copious, than when it is very scanty. I think that the addition of six or eight drops of the tincture of digitalis to each draught, containing the laudanum and other ingredients which I have just mentioned, is particularly useful when there is either much feverishness present, or a very irritable state of the mucous lining of the trachea and ramifica-

tions of the bronchi. Hyosciamus or hemlock will be found, in many instances, when given in combination with opium, to be productive of considerable advantage; but neither of these medicines will be in itself of very much avail. I do not think that any thing of a diaphoretic nature, such as hippo, or tartrate of antimony, is at all profitable, or even safe, in the advanced stage of Pulmonary Consumption; and this is owing to their great liability to increase the weakness of the system, as well as the feverish excitement.

In the treatment of the first stage of Pulmonary Consumption, I stated that the inhalation of any irritating fluid into the air tubes of the lungs is, in many cases, productive of the most mischievous effects, with reference to an increase of the rapidity of the growth of the tubercular formations, or to the hastening of their conversion into a purulent state. I endeavoured, therefore, to prove, that, in the treatment of the incipient stage of the disease, the inhalation of iodine in the gaseous state, or that of chlorine, is to be regarded as not at all suitable at such a stage. After, however, the suppurative process has taken place in the tubercular growths in the lungs, and caverns have been formed, the same is not the case; for I have known, in many instances, the inhalation of the vapour arising from a watery solution of iodine productive of the greatest relief, with regard to the symptom which I am now considering, without being in any respect injurious. It is, however, only in those cases in which there is a very copious secretion from the mucous lining of the trachea and ramifications of the bronchi, and from the caverns formed in the lungs, and in which there is, at the same time, no inflammatory excitement either of the parts from which the secretion takes place, or those in the immediate neighbourhood, that the gaseous inhalation in question will be profitable, or even safe. I have never known the introduction of any irritating fluid into the air tubes of the lungs fail to produce the very worst effects, when there was only a very scanty expectoration; nor have I ever known a single case in which it was not highly

injurious, when there was pain of chest, or any pain experienced, on making a full inspiration. It would therefore appear to me, that it is simply where there is a relaxed state of the mucous lining of the trachea, or ramifications of the bronchi, and where no inflammatory action exists either in the tubercular formations in the lungs, or in any of the surrounding parts, that it is to be considered at all applicable.

I do not think that blisters, tartar emetic, and powerful counter-irritants, should be applied to the chest with the view of relieving this symptom at an advanced stage of Pulmonary Consumption; as they will afford very little relief as far as the symptom itself is concerned, and will, to a certainty, give rise to debility of the system. The application of turpentine to the chest will, in many instances, give a considerable degree of relief to the cough, particularly when there is a greater or less degree of inflammatory excitement present. It is, therefore, the only counter-irritating application which I would recommend.

I have found, in some instances, that the application of four or five leeches to the upper part of the throat was productive of the greatest relief with regard to the cough. This, however, was the case only when there was an inflammatory condition of the larynx and upper part of the trachea,—a thing which is very common during the advanced stage of Consumption.

Although, for the relief of this symptom, it is absolutely necessary that a patient should breathe in an atmosphere of a certain temperature,—yet it is quite impossible, with any degree of safety, to remove him, in an advanced stage of Consumption, from a cold to a warm climate, provided the distance should be at all considerable. It will therefore be found necessary to keep a patient, under such circumstances, within doors during the prevalence of cold weather, and to keep the temperature of his apartment uniform, and, at the same time, moderately warm.

Diarrhæa.—It is very seldom that looseness of the bowels is troublesome during the incipient stage of Pulmonary Consumption; but such is not the case during the advanced, for

it is then one of the most harassing symptoms. There is certainly nothing that tends so much to hasten the occurrence of the fatal termination of the disease, as this affection of the bowels; and it is therefore necessary that it should, whenever it takes place, be checked with the least possible delay. It is with a loose state of the bowels as with many other diseased conditions of the system: the sooner after it manifests itself that remedies are had recourse to, the greater will be the chance of success from those which are employed. There are many cases in which it is not possible to do much by any curative means for its relief. This is particularly the case when it is accompanied with ulceration of the mucous coat of the intestines, whether such be the result of the suppuration of tubercles or not. It is a fortunate circumstance, however, that there are comparatively few cases in which irritation is present, unless there have been great neglect either on the part of the patient or of his physician. It is no matter what the nature of the disease is with which diarrhoea is combined, provided there be much general debility of the system, there will be a strong tendency to the production of ulceration in the intestines. Now, although it be necessary, in every instance, to have recourse to such means as will prevent the debilitating effects of the loose state of the bowels in question, still this is more particularly requisite when there is such local and general weakness as is likely to terminate in the production of ulceration of these organs, should the disease be allowed to continue. It would appear to me, with reference to the diarrhoea which occurs during the advanced stage of Pulmonary Consumption, that, in nine cases out of ten, it is not treated with a sufficient degree of decision at the commencement, and is consequently allowed to proceed too far before any active remedies are employed. Now, I do not care under what circumstances of the body the diseased condition of the bowels alluded to occurs, if it be not checked soon after it manifests itself, it will be a very difficult thing after a certain time has elapsed. It should never be forgotten, with reference to the treatment of a

loose state of the bowels, that the longer it continues, the more these organs, as well as the rest of the system, will be weakened, and of course the greater will be the tendency to its continuance. It would therefore appear, that although such an affection of the bowels takes place in the first instance from a state of general and local debility, yet, by the weakness to which it gives rise, it becomes a cause of its own continuance.

It is very commonly the case, that looseness of the bowels is brought on in an advanced stage of Consumption by the use of irritating, indigestible food, or by that of drink of an improper kind. It is, in fact, a most difficult thing, when the powers of the assimilating organs are much reduced in strength,—as is the case in an advanced stage of tuberculous disease of the lungs,—to suit the quantity and quality of the food to their powers and their sensibility to impressions. Aliment that is light, and easily assimilated, is not only the best for preventing the occurrence of the diseased condition of the bowels in question, but is that which is best calculated to nourish the body, and thus prevent the rapid reduction of its powers. Although a considerable proportion of nourishing, farinaceous food—such as arrow root and rice—be necessary when there is much debility of the assimilating organs, in common with the rest of the system; yet I think it should, in almost every instance, be combined with a certain proportion of animal food in the fluid state.

There is no medicine so powerful for checking all inordinate excitement of the bowels as that of opium. It is, however, unfortunately liable to disagree with the patient in some way; and consequently while it is productive of much benefit on the one hand, it may be giving rise to the most mischievous effects on the other. I do not know any thing that would seem to me so profitable for the relief of a loose state of the bowels at that stage of Consumption of which I am now treating, as that of the application of turpentine to the abdomen, either alone or with the addition of a certain proportion of camphor, in such a manner as to give rise to a slight degree of cutaneous inflammation.

If counter-irritation be kept up by the use of this application, and if, at the same time, there be strict attention paid to the quantity as well as the quality of the food, there will, in the great majority of cases, be no use for almost any internal medicine. Prepared chalk, if given in pretty large doses with some aromatic, such as powdered cinnamon or nutmeg, will, in a great many instances, be found most profitable with reference to the checking of the looseness of the bowels, without any risk of its being in other respects injurious. Catechu, kino, and other vegetable astringents, may in some cases be profitable; but still, in many instances, they will not prove so beneficial as might be expected. When the powers of the system are not very far reduced, and when there is any considerable degree of tenderness on the application of pressure to the abdomen, it may be productive of the best effects to take away a small quantity of blood by means of leeches. I have known many patients more relieved by the loss of small quantities of blood, than by all the astringents that could be employed. I am altogether of opinion, with reference to the looseness of the bowels which occurs during the advanced stage of Pulmonary Consumption, that the use of nourishing farinaceous food, in combination with light soup prepared from the lean of beef or mutton,—the employment of gentle counter-irritants to the abdomen,—the detraction of very small quantities of blood, particularly when there is much tenderness on the application of pressure, and the internal use of prepared chalk with some grateful aromatic, will, in the great majority of patients, be found to fulfil the object in view, without giving rise to any aggravation of any other symptom. Opium, either alone or in combination with the more powerful vegetable astringents, such as catechu and kino, may be occasionally necessary. From the great liability, however, of the first of these medicines to increase the hectic fever, its use should be as frequently dispensed with as possible.

Perspirations.—I think that profuse perspirations may be very properly included amongst the most debilitating of the numerous

morbid symptoms which tend to reduce the powers of the body during the advanced stage of Pulmonary Consumption. It is therefore necessary, that they should be restrained as far as possible by the employment of proper remedies, or else the disease will to a certainty run a rapid course, no matter what treatment in other respects is adopted. The quantity of perspiration which is lost in a given time in this disease is not in proportion to the extent of the morbid changes which have taken place in the lungs, nor to the actual debility of the system which is present at the time, but to the degree in which the febrile excitement prevails. The perspirations which in fact occur during the advanced stage of tuberculous disease of the lungs, although they are productive of the greatest debility, yet they are necessary for the temporary reduction of the heat of skin, and other feverish symptoms. It is therefore quite impossible, by the use of the most judicious remedies, to gain much with reference to the diminution or suppression of those perspirations which are so exhausting to the strength of the system at that stage of the disease of which I am treating, unless the necessary remedies be had recourse to for the removal of that feverish condition on which they depend.

In some cases, the most beneficial effects may be obtained for the relief of hectic fever, and consequently of the perspirations referred to by the employment of such remedies as are calculated to cool the body, and at the same time to impart to it a certain degree of strength. I do not know almost any medicines which are better calculated to fulfil these intentions, than the mineral acids, but more especially the sulphuric. If, for instance, six or eight drops of aromatic sulphuric acid be taken every hour with a little cinnamon water, or some other suitable vehicle, the feverish heat will be prevented from rising so high; and owing to this, there will be a proportional diminution of the perspirations. If the tonic and cooling effects of the acid be aided by the proper exposure of the surface of the body to the influence of pure air at a suitable temperature, it is very seldom that there

will not be a very considerable amount of benefit obtained. While it is necessary that the air which surrounds a patient labouring under the last stage of this disease should be perfectly free from every species of noxious impregnation, whether it be generated by the patient himself or not, it is at the same time requisite that it should be of a particular temperature. I think I may safely say, that, at least in nine cases out of ten, the air which patients breathe during the day or night, or both, is totally unfit to be respired under any conditions of the body; and while this is the case, its temperature is quite too high. In addition to the great advantages which are afforded by these means, there are other benefits which may be derived in like manner from the use of bitter tonics, but especially those which are of a light nature. I have never known a case of consumptive hectic fever giving rise to the profuse perspirations in question, which was not benefited in a greater or less degree by the use of light bitters, especially when taken in conjunction with the mineral acids. In most cases it will be found, that spirit of nitre, whether given with or without the bitter tonics, will be productive of the most beneficial effects. It would appear to me to be profitable in two ways; in the one by cooling the body, and in the other by promoting the secretion of the kidneys. I am of opinion, that, in point of efficacy, there are very few remedies to be compared with that of spirit of nitre for cooling the skin and preventing profuse perspirations; and while it operates thus, there are few which will have a more tonic effect, provided it be given in very small, but frequently repeated doses. It is very generally thought, that, at that stage of Pulmonary Consumption of which I am treating, the use of wine would aggravate the febrile heat, and consequently the perspirations. Now, so far from this being the case, its employment in suitable doses will have the most profitable effect. This will be more especially the case, when the strength of the system is much reduced, at the same time the feverish excitement is very high. The wine will be generally much more profitable when taken in very small quan-

tities at a time, and when diluted with five or six parts of water. I may mention here, that unless there be a considerable degree of attention paid to the quantity and quality of the food used by the patient, it would be impossible, in this disease, to keep down feverish excitement, and consequently profuse perspirations.

In conclusion I may observe, that the great objects which are to be fulfilled by the employment of different remedies, during the advanced stage of Pulmonary Consumption, are the prevention of local or general debility, or local or general excitement of the system. It would thus appear, that, no matter what may be the nature of the symptom which manifests itself during such stage of the disease, the physician should keep these ends closely in view. There are many morbid symptoms which will, from time to time, occur during the progress of tuberculous disease of the lungs, but which it would be useless for me to advert to in this work. If, however, the physician be sufficiently alive to the great necessity of keeping down all excitement of the body, and if he be at the same time attentive to the prevention of debility, he will not be likely, in many cases, to fall into the commission of any dangerous errors. It should be remembered, that the cure or the palliation of a disease cannot be effected in most instances by any single means, but by the co-operation of a great many. Now, I think this is more applicable to Pulmonary Consumption than to almost any other malady; and it would therefore appear, that while in its treatment it is necessary to have recourse to the use of certain medicines, it is equally requisite that there should be a due regard paid to food, drink, air, exercise, and every other thing that could contribute to the improvement of the physical condition of the body, and, in consequence of this, to the cure or relief of the disease.

THE END.









